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An Address.¹

By E. A. TIVEY,

President, New South Wales Branch of the
British Medical Association.

THE wheel of fate having taken another turn, I find myself tossed into this presidential chair. Only too painfully aware of my lack of qualifications for this important position, I crave your indulgence and help in my attempt to fulfil the duties connected therewith. The knowledge of the able and willing aid I shall always receive from the Council, and, above all, from the vast knowledge and ability of our Medical Secretary, Dr. John Hunter, has proved a powerful antibody against my fears of the task I am undertaking.

My first hurdle was the presidential address. A subject had to be chosen which would, one hoped, prove both informative and interesting.

With medical politics in a state of flux, and with the British Medical Association coming more and more into the limelight, I thought that a short historical account of the origin and activities of this Association would prove useful. It has seemed that too few of the profession, and none of the lay public, have any idea of the origin, aims and achievements of the British Medical Association, to some of which I propose to direct your attention this evening.

To some of us, I fear, the British Medical Association is merely the collector of subscriptions and the purveyor of medical journals; to others it is a sort of Joss that can be flogged unmercifully when things are not going quite smoothly. Let me take you back to the early years of the nineteenth century. At that time there was no regulation

of medical practice, and outside London, Edinburgh and Glasgow, where the colleges had certain privileges of practice, there was an "open go" as regards medical practice, and anyone who felt the urge to indulge in it could do so regardless of any qualification whatever. There was, of course, no official medical register, but in 1779, 1780 and 1783 issues of a "Medical Directory for England and Wales" were published. The 1783 issue shows that only about two general practitioners out of three had any medical qualifications. Even as late as 1841 it was stated in the House of Commons that out of 1,830 candidates for medical office under the Poor Law, 320 had never been examined in surgery, 323 had never been examined in medicine, and 223 had not undergone any professional examination whatever; yet these persons were all eligible for medical office under the Poor Law.

The Royal College of Physicians of London had long had a monopoly of the practice of physic in London and seven miles around. In Scotland the Edinburgh colleges enjoyed privileges which restricted practice in certain counties to their members, and the Glasgow Faculty of Physicians and Surgeons had similar rights in counties adjacent to Glasgow.

After this brief account of conditions prevailing in the early nineteenth century, we come to the foundation of the Association. This takes us to Worcester in 1828, when a journal bearing the formidable title *The Midland Medical and Surgical Reporter and Topographical and Statistical Journal* was started by a young, able and energetic physician of Worcester, Dr. Charles Hastings. He was born on January 11, 1794, the sixth son of the Reverend James Hastings, Rector of Bitterly in Shropshire. Not long after the birth of Charles, his father became Rector of Martley, near Worcester. In due course, medicine having been decided on as his career, he was apprenticed to Messrs. Jukes and Watson, of Stourport, Worcestershire. He later went to London, where he attended various private medical schools which flourished at the time. On his return to Worcester, at the age of eighteen, he was appointed

¹ Read at the annual meeting of the New South Wales Branch of the British Medical Association on March 22, 1945.

house surgeon to the Worcester Infirmary by 134 votes to 133, notwithstanding the fact that he was unqualified and his opponent an older and well-qualified man. However, his zeal and ability during his three years' tenure of the office amply justified his appointment. After that he went to Edinburgh and took the university degree in medicine. A vacancy on the staff of the Worcester Infirmary in 1818 was filled by his being elected physician at the age of twenty-four. He held the post for forty-four years, resigning in 1862. He soon became and long remained the leading physician of Worcester and its surrounding districts.

The journal which he had established was a medium for interchange of opinion and diffusion of knowledge. This journal lasted four years, during which time sixteen numbers appeared. The immediate cause of its cessation was the failure of the printers and publishers in London, but it had served a very useful purpose, as shown by a notice appearing in its last issue. It stated that: "The present number completes the third volume of the Midland Reporter and with it the work under the above name will terminate." After expressing appreciation of the enthusiasm with which the journal had been received, the notice goes on to say, "a wish has, in consequence, been warmly expressed and widely circulated, that members of the profession residing in the Provinces, should unite themselves into an Association friendly and scientific; that the Association should have as its main object the diffusion and increase of medical knowledge in every department of science and practice". Thus was conceived the Provincial Medical and Surgical Association, whose birth, after a four-years period of gestation from 1828 to 1832, occurred on July 19 of the latter year, in the board room of the Worcester Infirmary. On this date the inaugural meeting of the Provincial Medical and Surgical Association was held and more than fifty practitioners were present. Dr. Edward Johnstone, of Birmingham, was unanimously elected to the chair. Others present included the Regius Professor of Physic at Oxford, Dr. Kidd, and a number of physicians and surgeons from Bath, Bristol, Birmingham, Cheltenham, Warwick, Hereford and elsewhere, and including most of the resident faculty of Worcester and the neighbouring towns.

As this Provincial Medical and Surgical Association is the direct ancestor of the British Medical Association, let me quote in detail the prospectus as originally framed:

(1) Collection of useful information, whether speculative or practical, through original essays or reports of cases occurring in provincial hospitals, infirmaries, or in private practice.

(2) Increase in knowledge of medical topography of England, through statistical, meteorological, geological and botanical inquiries.

(3) Investigation of the modifications of endemic and epidemic diseases, on different situations and at various periods, so as to trace, so far as the present imperfect state of the art will permit, their connections with peculiarities of soil or climate or with localities, habits and occupations of the people.

(4) Advancement of medico-legal science, through succinct reports of whatever cases may occur in the provincial courts of judicature.

(5) Maintenance of the honour and respectability of the profession generally in the provinces, by promoting friendly intercourse and free communication of the members, by establishing the harmony and good feeling which ought ever to characterize a liberal profession.

The Association was to be managed by a president, two secretaries, a council and branch committees. The several officers were to be appointed annually by a general meeting of its members convened for that purpose at one of the large provincial towns, the place of such meeting being prospectively notified each year. The number of members of the council was left open, but it was desired that, as nearly as possible, physicians and surgeons should be equally represented. The subscription was fixed at one guinea *per annum*.

The Association thus started rapidly increased in numbers and influence. At its first annual meeting held in Bristol in 1833, it had 316 members on its roll, of whom

250 attended. Each succeeding year showed a considerable increase in membership. Although Hastings was the founder and fosterer of the Association, without whom it would not have been begun or have survived its early troubles, it is obvious that he must have had much help and cooperation from loyal comrades. Of these, the names of Johnstone, Kidd, John and William Connolly, Hodgson, Sands-Cox, Baron, and in particular Barlow, of Bath, who was president in 1838, should not be forgotten. The Provincial Association differed from previous medical societies and associations in various parts of the Kingdom in several important particulars. Firstly in its ambitious scope, by which it claimed to include the whole of England and Wales, except London, and in the second place, because, speaking in the name of the whole profession, it plainly stated as one of its objects, "the maintenance of the honour and respectability of the profession generally in the Provinces". But for this, which was soon to develop into the advocacy of medical reform and the pursuit of a number of medico-political aims, the early volumes of the *Transactions* of the Association did not differ in the nature of their contents from the annual volume of transactions of other medical societies. The Provincial Association met only once a year and had no fixed place of meeting.

Moreover, as shown in its prospectus, the Association made a strong point of such objectives as: (1) Acquisition of statistical information concerning public health and the improvement of means of maintaining it. (2) The pursuit of knowledge, not for the selfish benefit of the profession alone, but for the good of the community in general.

The impetus given by the success of the Provincial Medical and Surgical Association, especially in the direction of public health and medical reform, gave rise to other similar bodies with more or less similar aims, and generally in friendly rivalry.

Nine years after the successful foundation of the Provincial Medical and Surgical Association, the delegates of eleven of these associations attended a medical conference convened by one of their number in February, 1841. This convening body was one that had assumed the name of the British Medical Association, which had been started in London in late 1836, the actual definitive meeting taking place in January, 1837. A Dr. George Webster was the President of this Association throughout its brief existence, the end coming in 1844. A report in the *Medical Times* says of the last meeting of this British Medical Association: "The Secretary was absent, and the resolutions appear to have been moved by the President, seconded by the President, put to the vote by the President, and carried by the President. He was the whole meeting." Thus died the original British Medical Association, which has much the same relation to the present body of that name as *Homo neanderthalensis* has to *Homo sapiens*. This short-lived association had set out with very large ideas, such as setting up a faculty of medicine for the whole United Kingdom, to control medical education and suppress quackery, and also for reform of the medical corporations. Further, the Poor Laws, as affecting medicine, were to be the subject of inquiry. As the London body, led by its President, Dr. George Webster, expected the conference to endorse their policy in its entirety, the Provincial Association withdrew and the conference proved a failure.

Among the various local associations referred to above was the Eastern Medical and Surgical Association, which started at Bury St. Edmunds, in 1835, with Mr. Crosse, of Norwich, as secretary. The 150 members of this Association voted unanimously at their second meeting at Ipswich in 1836 to seek an intimate connexion with the Provincial Medical and Surgical Association, and amalgamation was arranged. The Eastern Medical Association is thus regarded as the first Branch of the Association, and, owing to distance, it was arranged that it should continue to hold local meetings.

The idea of having Branches of the Provincial Association arose early. At a meeting in 1835 it was recommended: "That in places where many members of the Association reside, occasional meetings of such members should take place." At the annual meeting at Cheltenham in 1837, a set of regulations for the conduct of Branches

was adopted. The establishment of Branches has proceeded steadily until at present there are some 95 Branches.

The first Australian Branch to be formed was the South Australian in 1879. There were only six members of the Association practising in the colony at the time, and these signed the nomination papers of some thirty members who were duly elected on October 15, 1879, by the committee in London. It was not till July 7, 1880, that formal recognition of the Branch was adopted by the Committee of Council, the New South Wales Branch being recognized at the same session, and Victoria a month later. The other Branches in Australia in order of seniority are those of Queensland, Western Australia and Tasmania. The New Zealand Branch was formed in 1896 and has had a prosperous and active career. It contains some thirteen Divisions. It was preceded by the New Zealand Medical Association.

In South Africa there are twelve Branches in the Union and Mandated Territory of South-West Africa. The situation in South Africa is interesting, as it shows the spirit of compromise that exists in the British Empire. A rival association, the South Africa Medical Association, had grown up, and had considerable local appeal by its name to those who objected to being "governed from London". Dr. Alfred Cox, then medical secretary of the British Medical Association, went to South Africa, and, after his investigations and negotiations, unity between the British Medical Association and local factions was achieved by the simple expedient of giving the whole of the Branches in the union and South-West Africa the right to call themselves the Medical Association of South Africa (British Medical Association), the Branches remaining in the same relation to the home body as before, and their members being ordinary members of the Parent Body. The Branches have formed a Federal Council similar to ours. South Africa, like Australia, publishes its own journal. Thus the danger of having two rival bodies, which would form a lever for bargaining by those who had to deal with the profession, was removed.

The case of Canada is peculiar, as though there are many members, there are no Branches of the Association. The position at present is that the Canadian Medical Association is affiliated with the British Medical Association, the bond being more sentimental than material, but sufficiently strong for the 1930 annual meeting to be held at Winnipeg at the invitation of the Canadian Medical Association.

This leads us on to a consideration of the changes in the constitution that became necessary as the Association evolved from a small local body to an Empire-wide association with its thousands of members.

Originally it was very simple and almost haphazard, and let it be noted that the present satisfactory state of the Association has come as the result of the usual British "muddling", rather than the modern so-called planning.

Originally the Association was "to be managed by a President, two Secretaries, a Council and Branch Committees", but no details were given as to the mode of election of the Council. At the inaugural meeting at Worcester a council of seventy was elected at the meeting, and at each annual meeting this number was increased by the election of local members at each place of meeting, so that the Council soon became unwieldy in size, for no machinery was provided for the retirement of members of the Council. Officials of Branches were ex-officio members of Council, and as the number of Branches increased, these swelled the numbers of Council still more, so that in 1853, when there were some 1,800 members of the Association, the Council numbered 312.

Actually the Association was governed by the members of the Council living in and near Worcester, where the two secretaries lived, and where the journal was published. In 1854, however, the publication of the journal had been transferred to London, and at the meeting in Manchester an attempt was made to regularize the position, and a resolution was passed "that the members of the General Council resident in and within 20 miles of Worcester, be requested to act as an Executive Council, and to continue their services as hitherto . . . to which Executive Council the editor of the journal and the secretary shall be

responsible". Naturally the rather lax arrangements which passed muster for a small local body of small numbers were unsuitable for a widespread society of over 2,000 members. Accordingly a resolution was carried for the appointment of a committee to "examine, revise, alter and amend the laws of the Association".

This committee's report appeared in the journal of May 25, 1855, the membership then being 2,095. This was a critical time for the Association, and feeling ran high on various questions, including a proposal to change the name to British Medical Association. Hastings and the original Worcester members were loath to do this, as it meant that London would be included, and the centre of gravity of the Association would be transferred there. The original proposal to change the name was defeated at the York meeting by 50 votes to 31.

The committee's report was considered, and it was resolved that the Council should consist of officers of the Association, and of members elected by Branches according to size: those with less than thirty members being represented by their presidents only, those with over thirty having their secretaries as well, and for every twenty members beyond thirty, another member in addition.

It was further proposed that the annual meeting should elect an additional member of Council for every twenty members not belonging to any Branch. The Council thus formed was to elect an Executive Council consisting of two central officers, ten members of Council chosen by Council, and one secretary for each Branch. This executive could delegate its powers to any five members.

A large majority of members who did not record their votes at the York meeting were still dissatisfied with this measure of reform, and also did not accept the adverse vote on the change of name. Several Branches sent in requisitions for a special general meeting for the reconsideration of these questions. It was summoned, and at the same time the Council sent out ballot papers on the question of change of name, thus putting into practice the principle of the referendum.

At the special meeting in Birmingham in November, 1855, Sir Charles Hastings, as he had by then become, announced that there was a decisive majority in favour of the change of name. Thence the Provincial Medical and Surgical Association became the British Medical Association. At the ensuing annual meeting at Birmingham in 1856, Hastings formally moved the change of name, and the principle of absolute representation in electing the Council, so that each member of the general body might have, by his representative, a voice in the management of its affairs. The clause that the executive could delegate its powers to any five members was rescinded; otherwise the new rules were carried *nemine contradicente* and all threats of resignation were withdrawn, and peace was restored. This idea of representative government has been continually before the Association, and it was thought to have been achieved over and over again; and within a few years dissatisfaction had arisen and what was arranged by one set of members was regarded by their successors as not representative or not sufficiently so. Periodically the issue came up until finally the matter came to a head in 1900. A conference of delegates from societies and associations of general practitioners throughout the country was promoted by the Medical Guild of Manchester. The objects of the conference were:

1. To promote greater adhesion and better organization among general practitioners.
2. To afford opportunity of meeting and discussing together all matters affecting their welfare and in this way bringing their views to a focus.
3. By giving publicity to their views to influence public opinion in their favour, and so uphold and improve the status of the profession.
4. To provide machinery whereby the advantages of the annual conference may be secured to the profession.

Some 54 delegates represented 54 medical bodies, including seven Branches of the Association, as well as representatives of Council.

After long, and at times bitter, discussion, in which Mr. Victor Horsley, Dr. Smith-Whittaker, Dr. Alfred Cox and

Dr. Samuel Crawshaw took a prominent part, the present constitution of the British Medical Association was evolved. As there was a tendency for this conference to set about reform without reference to the British Medical Association, it became the particular task of Dr. Alfred Cox, who was later medical secretary, to argue for reform within the Association. He carried his point effectively, not without considerable opposition, as four years earlier a similar conference had been held and had ended in a fiasco. The Council had been unable to reconcile its policy with the one drawn up by the committee appointed at that time. Thus there was a fear that there might be a repetition. In the end, Dr. Cox's views were embodied in the following motions, which were carried:

1. That the present need in medical organization is concentration.
2. That the multiplication of associations other than those purely local is to be deprecated.
3. That the size, position and wealth of the British Medical Association make it the most suitable medical organization.
4. That the efforts of all medico-ethical and similar associations and of the conference should be directed to conversion of the British Medical Association into an energetic body really representative of the majority of the members of the profession.

A basic principle laid down was "that the primary unit of the Association should be such that every member thereof shall have a reasonable opportunity of attending every important meeting". These primary units came to be called Divisions. Groups of Divisions constituted Branches. The work of the Association in maintaining the honour and interests of the medical profession, apart from that carried on in the Branches and Divisions, was to be conducted by the Council and other executive body (if any), in accordance with the competent decisions of an annual meeting of representatives of the Divisions. This came to be known as the annual representative meeting, and the Representative Body, having its own chairman, became the governing body in the sphere of medical ethics and medical politics, the Council being the executive body to implement their decisions.

Despite the opportunity thus given to all members to attend local meetings, the attendance at Branch and Division meetings was meagre, and it was estimated that only about 2,000 attended these meetings at all places in 1901, though the membership of the Association then was over 18,000. This must not altogether be put down to lack of interest or apathy. The attention of the vast majority of the profession is centred in their daily work of healing the sick. They leave questions of policy and organization to be dealt with by the minority who have a broader outlook and to whom corporate welfare makes an appeal. This seems to be inevitable, and must be accepted with its advantages and disadvantages.

The Divisions, the Branches, the Representative Body and the Council furnish the machinery of government of the Association. The divisional units are so numerous (283) and so ubiquitous that it is quite practicable for every member of the Association to make his voice heard in its control.

The Representative Body elected by the Divisions is the supreme power; it elects the president and treasurer of the Association. The Branches are convenient groups of Divisions, and the Council, instead of being a parliament, is practically and mainly an executive committee.

The power of the Association "to promote medical and allied sciences, and to maintain the honour and interests of the profession" was never so great as it is now, and its membership has grown to 46,195 in 1944.

In the field of medical reform the Association early made its presence felt. In 1837 a Medical Reform Committee was appointed "to watch over the interests of the profession at large". The method of regulation of the profession was not finally enacted until 1858, when the first Medical Act was passed, and this was almost entirely the work of the Association. Though it fell far short of the mark set by the profession twenty years earlier, it was the first really official recognition of the existence of the great body of practitioners, and of their importance

to the State. Even if it benefited the doctors, it benefited the public even still more by improving the education of practitioners of the future. The Medical Reform Committee continued to function, and it was responsible for further amendments and improvements to the act as time went on. I should like here to draw attention, in some little detail, to the activities in connexion with public health and State medicine. At the inception of the Association the science of public health could not exist, as there were no facts on which it could be based. The sanitary condition generally prevailing all the world over was primitive in the extreme and it seems remarkable that such glaring and offensive menaces should have gone on for so long unchecked. In 1831, under the threat of a cholera epidemic, a Consultative Board of Health, consisting of a number of physicians, was formed, but its advice was limited to little more than rules and regulations for quarantine and isolation. Such a body, hastily formed for an emergency, had no permanent effect on sanitary reform or vital statistics. The Provincial Medical Association recognized this hiatus in medical knowledge in its earliest days, as shown by the prospectus of the Association, where the study of topographical medicine, which includes the more modern epidemiology and vital statistics, is emphasized. At its first anniversary meeting in 1833, the secretaries were directed to approach the House of Commons Committee on Parochial Registers submitting "that great benefit might be expected to accrue to medical science, and consequently to the community at large if arrangements could be made for recording causes of death in the provincial registers of mortality".

Three years later the act of 1836 for the registration of births, deaths and marriages laid the foundations for the first serious study of public health. The Association pressed strongly for the appointment of a registration medical officer in every superintendent registrar's district.

The notification of infectious diseases was frequently discussed by the Association, and in 1876 it was decided that notification should be compulsory, the medical attendant being required to declare the nature of the disease, while the duty of notification was to be the householder's, so as to avoid the appearance of any breach of confidence on the part of the medical attendant. In 1879 the last report of the committee on registration of diseases was made, and this was not in favour of notification by the medical attendant. In 1881, at the annual meeting at Ryde, there was much opposition to notification by the doctor, but ultimately it was decided to support the bill introduced by Mr. G. W. Hastings, M.P., son of Sir Charles Hastings. In 1889 an act was passed which provided for the compulsory notification of certain infectious diseases, and laid the responsibility on the householder as well as the doctor.

The Association has also urged and financed measures to investigate and endeavour to eliminate various diseases of great national importance. One has only to instance its effects in connexion with *ophthalmia neonatorum*, cardiac disease in childhood (1923-1927), rheumatic heart disease in childhood (1927-1930), maternal mortality and morbidity.

Let it be noted that the policy of the Association has, in the main, been in advance of public opinion, provoking considerable opposition when first formulated, but receiving the sanction of legislation after the lapse of years; also, that while the details of the policy put forward for immediate application have necessarily varied from time to time with contemporary, social and economic conditions, the advance of science and the growth of administrative experience both governmental and professional, the main objects have never varied. These may be defined as the advance of knowledge of the incidence, cause, prevention and cure of disease; the provision of adequate health services to the whole community, irrespective of individual economic circumstances, by methods adjusted to the needs of different groups; and the maintenance of conditions conducive to progressive standards of efficiency in medical practice and in the services auxiliary to medicine.

This last aim clearly implies the protection of the material interests of the profession, but it has been consistently interpreted as covering also the elaboration of

the most effective means of cooperation between the profession and auxiliary health services, the tendency to any narrow professionalism being thus avoided.

Though much has been accomplished, much remains to be done and new problems are always presenting themselves. At present we are diligently searching for some means of improving medical services to the public and of making these more and more available in accordance with modern standards of practice, and, at the same time, preserving all that is best in our present system, for example, the provision of a family doctor in fundamental accordance with the present system of private medical practice.

Another vital and urgent problem is the provision of hospital accommodation and the reform of hospitals generally. This has been shamefully neglected in the past and is apparently only being toyed with now.

As there is a good deal of misunderstanding and ignorance about what the Association did during the fight over national health insurance on its introduction in England, I shall give a brief *résumé* of the events of that period. The bill was introduced in May, 1911, became law in December of that year, came into partial operation in July, 1912, and the medical benefit provisions commenced in January, 1913. The friendly societies, the trades unions and insurance companies were classed as approved societies to administer the act. They were soon in close consultation with the Minister-in-Charge, but there was no such consultation with the British Medical Association until the main lines of the measure were laid down, and not then, until pressure had been brought to bear by the Association. The bill in its first form placed the control of doctors concerned in working the system under the "approved societies". It provided six shillings *per annum* as the capitation rate for the provision of medical attendance and drugs. It did not allow free choice of doctors, but left the approved societies to appoint doctors. There was no income limit to the beneficiaries, and there was no mention of medical representation on any of the bodies concerned in the administration of the system. On June 1, 1911, exactly four weeks after the introduction of the bill, the following demands were formulated by a special representative meeting, which Mr. Lloyd George attended, and where he both gave and received much useful information. Six cardinal points were laid down:

1. An income limit of £2 per week to those entitled to benefit.
2. Free choice of doctor by patient, subject to consent of the doctor to act.
3. Medical and maternity benefits to be administered by insurance committees and not by friendly societies. In connection with the question of the method of administration of medical benefit, the meeting resolved that all questions of professional discipline should be decided exclusively by a body or bodies of medical practitioners, and that the power of considering all complaints against medical practitioners should be vested in a local medical committee, with the right to appeal to a central medical board to be appointed for the purpose.
4. The method of remuneration of medical practitioners adopted by each insurance committee to be according to the preference of the majority of the medical profession of the district of that committee.
5. Medical remuneration to be what the profession considered adequate, having regard to the duties to be performed and other conditions of service.
6. Adequate medical representation among the insurance commissions, in the Central Advisory Committee and in the insurance committees, and statutory recognition of a local medical committee representative of the profession in the district of each insurance committee.

In the summer of 1911 the Association had received 26,000 signatures to a pledge not to take any part in the government scheme. At the same time the position was safeguarded by the Association's obtaining 33,000 resignations covering the greater number of friendly society appointments. As a result of protracted negotiations, the Association gained many points, and generally improved the position of the profession.

1. Free choice by doctor and patient was conceded.
 2. Administration of the system was taken away from approved societies, and given to new bodies called insurance committees, on which the medical profession was represented.
 3. Local bodies representative of the profession were set up in every insurance area, and given considerable powers and duties as regards the medical side of administration of the system.
 4. The discipline of the insurance doctor was left largely in the hands of bodies of his peers.
 5. The method of remuneration was left to be settled by local committees of doctors.
 6. The special claim of the rural practitioner was acknowledged by the institution of a special drug fund of £30,000 and a special mileage fund of £50,000.
- Thus, of the six cardinal points, four were gained completely. One of the remainder, namely, amount of remuneration (the amount, though never accepted formally by the Association), was raised from the originally offered six shillings, including drugs, to nine shillings.
- The Government refused to fix the income limit, and Parliament, by large majorities, decided that every manual worker, whatever his income, should be compulsorily insured, and, therefore, entitled to medical benefit. True, the insurance committees were empowered to fix a local income limit, but nobody believed they would do so, and the provision has been a dead letter.

In December, 1912, the representative body passed a resolution that the conditions of service were not in the best interests of the public and the profession, and were unworkable and derogatory.

This was passed in spite of the knowledge that there was evidence that considerable numbers were breaking away from their pledges, partly, no doubt, because many had come to the conclusion that they could get no better terms, and largely because word had gone round that the Government had secured a considerable number of men willing to be employed directly by the Government, and that in certain areas a service would be forthcoming in January, 1913. There was a rush all over the country "to get on the panel" before it was too late, and at a special representative meeting on January 17 and 18 a resolution was carried releasing all men from their pledges.

Parliament, the public and the Press were all impressed by the fight the Association had put up, and proclaimed the result to be, on balance, a great victory for the Association. The *Westminster Gazette* stated: "We all admire people who do not know when they are beaten; the trouble with the B.M.A. is that it doesn't know when it has won."

It is impossible for me to deal with all aspects of the Association in the time at my disposal, but I must give some mention to the journal, which has been such an important factor in the development of the Association.

When the Provincial Medical and Surgical Association was first established it had no weekly or fortnightly periodical to report its doings or represent its interests. An annual volume of its transactions, the first of which appeared in 1833, was published and followed by eighteen others, ending with that recording the annual meeting of 1852, which appeared in 1853. The last eleven volumes of the transactions were overlapped by the volumes of the *Provincial Medical and Surgical Journal*, a weekly publication, of which the first number appeared on October 3, 1840, under the joint editorship of Dr. Hennis Green, of London, and Dr. R. J. Streeten, of Worcester. The latter was a physician to the Worcester Royal Infirmary and so was in close contact with Hastings. This journal at first had no official connexion with the Provincial Association, but claimed to promote as far as possible "the interests of the several medical associations that have formed in various parts of the country and more especially those of the Provincial Association". On the scientific side it was well supplied with clinical records and with papers on the practice of medicine and surgery. Its leading articles were well written in a tone worthy of the high aims of the Association and free from vulgar abuse and scurrility which disfigured the pages of some of its contemporaries. An announcement in a leading article of the issue of April 3, 1844, stated:

The present number of this journal is the first of a new series devoted entirely to the interests of the Provincial Medical and Surgical Association and published under the control of its officers and Council. The work will, from this time, be exclusively the journal of the Association, and no other interests, whether of the publisher or proprietor, will be suffered to interfere.

This journal was the direct ancestor of the present *British Medical Journal*.

For a period from 1847, the journal appeared fortnightly, apparently from motives of economy, and this continued for a few years when weekly publication was resumed under the title *Association Medical Journal*. The first number under the present title appeared on January 3, 1857, the leading article stating:

In accordance with the vote of the Association, its organ this day assumes the title of the "British Medical Journal", being the journal of the British Medical Association.

It was under the prolonged and distinguished editorship of Mr. Ernest Hart that the journal became the force in British medicine that it still maintains. Hart was appointed in 1866, and apart from a period, 1869 to 1870, he held the position with distinction until his death in 1898. There is a good deal of mystery connected with this year of retirement, during which time the editorship was held by Mr. Jonathan Hutchinson, later famed as a great syphilologist. This mystery has never been satisfactorily explained, and later Hart, in an editorial, refers to his editorship as uninterrupted since 1866. The quality of the journal and the demand for it had a great deal to do with the increase in membership; and thus grew up a large group of members who were not attached to any Branch. The question of their representation on the Council and in the government of the Association was one of the problems that gave a good deal of concern in framing the constitution.

These members had joined purely for the purpose of getting the journal, which, as members, they could do for the subscription of one guinea, the cost of the journal by separate copy being much more.

It has taken considerable time to cover only some, but I think the main, aspects of the history and activities of the Association from its inception.

Be it noted that there has been progress, but always orderly progress; let us never adopt change because it is something different, but only when we are dead sure it is something better.

I chose this subject because I wish to stress the importance of unity of the profession and loyalty to the Association. It is a notorious fact that while extolling the nobility and generosity of our profession as a whole, public and private bodies, municipalities, corporations, clubs, medical aid institutions and charities vie with one another in their attempts to use our services without reward or for the smallest compensation possible; and it is also clear that the only chance the rank and file of the profession—those who perform the most and the best of its work—have to repel these attacks is the support of a great and powerful body like our Association.

Let me end by emphasizing that the ultimate aim and purpose of the art and science of medicine is the public welfare, and from that objective the Association has never deviated.

MILK AND THE PUBLIC HEALTH.

By A. R. SOUTHWOOD, M.D., M.S. (Adelaide),
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The Medical Viewpoint.

EVERYWHERE in the world there are problems concerning milk supplies, and especially the milk supplies to the big cities. In rural areas, where there is little distance

between the points of origin and consumption of the milk, problems are likely to be less acute. Yet, even in the country, trouble does occasionally arise from milk, unless proper care is taken in its handling.

In this review I consider only the health aspects of milk supply. The economic aspects, important though they are to the milk producers and to the community, are not the peculiar concern of the doctor. He is not especially concerned with business organization and with costs, but he has a duty in regard to the people's health. He must indicate where dangers lie and how to obviate them.

It is as a doctor interested in milk supply that I speak tonight. I claim no expert knowledge of dairy technology, but I do like milk, and I am anxious that all of us who like milk shall have it supplied us as a clean and safe product.

Milk: A Foodstuff.

Milk is not merely a beverage. It is a food of great nutritive value. In that fact lies its importance in relation to public health. It is a valuable food for babies and children and for the sick.

The food-fuel or caloric value of milk is considerable. A pint of milk is as nourishing as three ounces of cheese or of bacon, as five ounces of cooked meat or of bread, or as five eggs or one pound of potatoes.

The well-known and much-quoted investigation made in 1926 by Dr. Corry Mann in England showed that a liberal and regular allowance of milk for schoolboys made them grow fatter, taller, stronger and brighter. Over a period of twelve months a group of boys receiving a dietary supplement of a pint of milk a day gained an average of 6.98 pounds and grew an average of 2.63 inches; in the group receiving an ordinary full diet the average gains were 3.85 pounds and 1.84 inches.

And what about the vitamins in milk? Milk is a fairly good source of vitamins A, B₁ and B₂ complex; but its content of other essential vitamins is not so high.

Corry Mann's study showed the value of milk for growing boys. For adults also milk is a good food. The taking of a pint of milk a day has a beneficial effect on the general health and working capacity of grown-up men and women. Milk drinking has become popular. The "between meals" glass of milk supplied in many factories has been shown to improve the health and efficiency of the employees.

Milk is a valuable food. Health authorities are wise in encouraging people to drink it, but only if full reliance can be placed on its safety.

So far I have considered the bright aspect—the high value of milk in nutrition, in helping to build strong, healthy people. There is, unfortunately, a dark side—the possibility of spreading diseases by milk. It is generally known that milk may become contaminated with disease-producing germs unless care is exercised by milkers and distributors. If people know that milk drinking may be risky to health they are unlikely to take up the habit; and who can blame them?

At a meeting such as this it is unnecessary for me to list in detail the essentials for producing clean milk. You know better than I do the importance of having healthy cows, proper premises and equipment, clean and suitable utensils, and the rest. Careful observance of all those points will give clean milk. Is clean milk, so produced, safe to drink? Yes, if all the desiderata are fully observed. But there are great difficulties in assuring complete observance—healthy cows, healthy handlers and absolute cleanliness in all the processes of production and distribution. There are many loopholes, many chances for contamination to occur.

The Risks of Contamination.

A distinction is made between "clean" milk and "safe" milk. By cleanliness is meant freedom from extraneous matter, such as manure and dust, from blood, and from an excessive number of germs. By safety is meant the freedom of the milk from such bacteria as are capable of causing disease in man or animals. "Clean" milk may be dangerous to health; "dirty" milk may be safe. "Clean" milk is not necessarily "safe" milk.

Yet, although cleanliness of milk and its safety may be considered separately, the aim of all those concerned with

¹Read at a meeting of the Australian Society of Dairy Technology (South Australian Division) on January 25, 1945.

public health must be to see that milk supplied to the consumers is safe as well as clean.

Milk is a good culture medium for germs. Most pathogenic organisms, once they get into milk, can grow well in it, especially if the milk is not kept well cooled. And how do the germs get there? Sad to say, the opportunities are many. In brief, the possible sources of bacteria in milk are as follows:

1. The cow's udder. Milk produced under the best practicable conditions of cleanliness is invariably contaminated with some bacteria. Usually the germs are of harmless varieties. But if the udder is diseased there may be streptococci, *Brucella abortus*, tubercle bacilli and other organisms in large numbers. *Staphylococcus aureus* and *Corynebacterium diphtheriae* may also be present in the udder and so may infect the milk.

2. The milking shed and the utensils. The main sources of bacterial contamination of milk after it has left the udder are unsterilized utensils. Grease particles and moisture in the minute pits and irregularities of the metal utensils may allow prodigious bacterial multiplication.

3. The human subject. An unhealthy milker is a menace. He may introduce into the milk germs of naso-pharyngeal or of excretal origin. If the milker is incubating scarlet fever, septic sore throat or diphtheria, or has recently recovered from one of those illnesses, or if he is a healthy carrier of hæmolytic streptococci or diphtheria bacilli, then transmission by cough spray to the milk may be dangerous. Typhoid fever, paratyphoid fever, dysentery and food poisoning bacilli may gain access to milk from human patients or carriers, usually by way of hands and fingers soiled with excreta. The typhoid fever epidemic in the Moorabbin area of Melbourne in 1942 was milk-borne.

4. Imperfect cooling. Neglect to cool the milk will not, of course, add fresh germs to the milk, but it will lead directly to a tremendous increase in the total germ population. Adequate cooling is extremely valuable in checking bacterial multiplication.

We must remember, then, that clean milk is not always safe milk. Gross dirt may be absent, and germs may be few; but if those few germs happen to be pathogenic there is danger lurking in the pail.

How can the risks be obviated? The additional and necessary safeguard lies in heat treatment, either by sterilization or by pasteurization, and in protection from any subsequent contamination. The concentration methods are also effective in making milk safe; dehydrated or dried powdered milk, sweetened condensed milk, and evaporated or unsweetened condensed milk are the three ordinary forms in which concentrated milk is prepared and sold. For any large-scale scheme the method of pasteurization is generally suitable, although some cities—Birmingham (England) for example—have successfully adopted the sterilization method.

The methods of heat treatment available, then, are as follows: (i) boiling (sterilization), (ii) pasteurization, (iii) concentration: (a) dehydration (dried milk), (b) evaporation (sweetened condensed milk), (c) evaporation (unsweetened condensed milk).

The Process of Pasteurization.

The following statement comes from the *Health Bulletin of the League of Nations*, 1937:

No raw milk can ever be regarded as completely safe for human consumption. . . . It is our considered and emphatic opinion that all liquid milk for human consumption should be adequately pasteurized or boiled.

So runs one of the conclusions of an international committee's report.

Professor G. S. Wilson, in his recent book, "The Pasteurization of Milk", refers to the observations of Louis Pasteur in France between the years 1860 and 1864, that abnormal fermentation and souring of wine could be prevented by exposing it for a short time to temperatures of 122° to 140° F. A little later Pasteur found that a similar treatment was effective in protecting beer against souring. The practical application of the process gave rise to the term "pasteurization".

It was soon discovered that the souring of milk also could be greatly retarded by heat treatment. A process,

which varied from one dairy to another, but which was generally referred to as pasteurization, was gradually introduced into the larger towns of Europe and America with the purely commercial object of prolonging the life of the milk. Later, it was shown that heat treatment, if carried out under satisfactory conditions, destroyed not only most of the souring organisms, but also all the various pathogenic organisms in the milk. With increase in our knowledge of milk-borne diseases, this second or public health aspect of pasteurization has assumed more and more prominence and now greatly outweighs its original commercial object.

So far as public health is concerned, the object of pasteurization is to destroy the various pathogenic organisms that may be present in milk and thus render it safe for human consumption, and to bring about this destruction with the least possible alteration to the physical, chemical and nutritive properties of the milk. This latter purpose is more readily achieved by pasteurization than by boiling.

Ordinary cooking of milk by bringing it to the boil is enough to kill any pathogenic organisms in it, and the careful housewife receiving loose milk regularly adopts that precaution. Pasteurization serves a similar purpose in a large-scale way and does less damage to the structure of the milk.

There are two recognized methods of pasteurization:

1. The "positive holding" or "holder" or "low temperature-long time" pasteurization. The milk is retained at a temperature of not less than 145° F. and not more than 150° F. for thirty minutes, and it is cooled immediately afterwards to a temperature of not more than 55° F. This was the only method recognized in England till recently. In 1941 the "high temperature-short time" method was also approved.

2. The "high temperature-short time" process. The milk is retained at 162° F. or more for at least fifteen seconds, and then cooled as in the "holder" method.

The Effect of Pasteurization.

The effect of "holder" pasteurization on the natural constituents and the general properties of cow's milk has been carefully investigated by Professor G. S. Wilson (1943). Professor Wilson is the world-recognized authority on the subject, and his recent book on pasteurization is likely to remain the standard authoritative work for many years to come. The changes brought about in milk by pasteurizing are summarized as follows: The cream line is reduced by 10% to 30%. About 5% of the lactalbumin is coagulated. About 5% of the calcium and phosphorus is rendered insoluble. A small proportion, less than 20%, of the iodine is driven off by volatilization. Some destruction of the vitamin B₁ content occurs, usually about 10% and at the most 25%. The vitamin C content undergoes a reduction of about 5% to 50%, the average being about 20%.

Experiments show that the availability of calcium and phosphorus, the biological value of the protein, and the total energy value of the milk remain practically unaltered. There is no change in the lactose or in the fat of the milk, and there is no significant difference in nutritive value. The flavour of the milk is somewhat changed owing to the removal by filtration and heating of volatile substances derived from the cow or from manure (Wilson). The acquisition of a cooked taste is practically negligible and (as actual experiment shows) cannot be detected by the great majority of ordinary persons.

It is thought by some people that pasteurization is used as a cover or cloak for dirty milk. That is not the view of those conversant with the subject. It is essential that clean milk only shall be put through the pasteurizer. Pasteurization is not used as a disguise or corrective for unclean milk, but it does make clean milk safe. Under laboratory conditions, or in properly controlled pasteurizing plants, all pathogenic organisms in milk likely to give rise to disease on ingestion are destroyed within half an hour by exposure to a temperature of 138° F. Since each degree rise in temperature greatly accelerates the process of killing, and since a temperature of 145° to 150° F. for at least thirty minutes is required for "holder" pasteurization, it is clear that a considerable margin of safety is afforded to the consumer of pasteurized milk.

Pasteurization makes milk safe, provided that the process is properly performed. There are many technical difficulties in it. It is not an automatic, fool-proof business. Fortunately the phosphatase test is useful in ensuring that the treated milk has in fact been properly pasteurized.

The aim, therefore, is to have the milk produced in the cleanest possible manner and to have it pasteurized before distribution. The milk, before pasteurization, should pass the four-hour methylene blue test (or have a correspondingly high value by the resazurin test).

The standards to which efficiently pasteurized milk should conform are as follows:

1. The milk should pass the phosphatase test. Milk phosphatase is destroyed over a temperature range of 140° to 167° F. (on a time-temperature ratio). Total destruction of tubercle bacilli (the most resistant pathogens) occurs before phosphatase is all destroyed. Absence of phosphatase from a sample of pasteurized milk indicates complete destruction of any pathogenic organisms which may have been present in the original raw milk. The law requires that no phosphatase shall be present in pasteurized milk. Sir William Savage, the English expert, regards the phosphatase test very highly: "With the phosphatase test we do not really require a bacteriological test for routine purposes."

2. Pasteurized milk should not contain any coliform bacilli in 0.1 mil.

3. There should be less than 100,000 bacteria per mil. For this test the milk should be taken, not immediately after treatment, but just prior to delivery to the customer.

An Ideal Supply for a City.

After a study of the various aspects of the problem it is easy to formulate a simple and adequate basis for the conduct and control of a city milk scheme:

1. The milk should be produced in the cleanest possible manner. The standard test should be the four-hour methylene blue test.

2. The milk should be cooled to 50° F. and kept cool during transit to treatment depot.

3. The milk should be pasteurized and cooled. The standard test should be absence of phosphatase.

4. The milk should be bottled.

5. The milk should be kept cool during delivery.

It is unnecessary, for routine purposes, to perform bacterial counts or other complicated tests. As Professor Wilson has shown, the results are liable to misinterpretation, especially by those untutored in the principles of bacteriology. The methylene blue (or, if preferred, the resazurin) test provides an effective check on the cleanliness of the raw milk, and absence of phosphatase from the heat-treated milk assures its safety.

The basic features of an ideal milk scheme for Adelaide are here set out:

1. The supply of milk to the metropolitan area, and its distribution to consumers within the area, would be under the sole and complete control of a specially appointed metropolitan milk board. The board would be a small one and would include, say, a chairman, two "consumers" representatives, two "industry" representatives, and one representative of each of the government departments of health and of agriculture. Such a board would resemble in its constitution the Metropolitan and Export Abattoirs Board (Adelaide). The vesting in one special board of the complete responsibility for controlling the supply would be the best means of ensuring proper attention to all the hygienic aspects.

2. The metropolitan milk board would conduct a depot where the whole milk supply for the metropolitan area would be received and pasteurized. Just as the metropolitan abattoirs receive and prepare the city's meat supply, so the milk depot would receive and treat the city's milk.

3. The cows would be kept in country districts, away from thickly populated areas. Cow-keeping within the metropolitan area would be prohibited. The keeping of large dairy farms, run on sound hygienic lines, would be encouraged. The report presented last year by Mr. Gale, of the Metropolitan County Board, shows the advantages of such farms.

4. The premises and apparatus at the farms would be adequate, especially in providing for the steam sterilization of utensils and for the cooling of milk.

5. All dairy premises, even those at long distance from the city, would be regularly inspected and supervised by inspectors on the staff of the metropolitan milk board. Such arrangements have been followed in New York for many years; the city employs its own officers to inspect all the supplying dairies, some of which are 200 miles from the city.

6. The cows would be subject to inspection by qualified veterinary officers at quarterly intervals or more frequently.

7. Tuberculin testing of cows would be conducted. By the routine inspections and testing, care would be taken that only healthy tuberculosis-free herds were contributing to the city's milk supply.

8. The metropolitan milk board would be the sole purchaser of bulk milk for the city area and would control the arrangements for bringing the milk from dairies to city depots.

9. All the recognized measures for producing clean milk would be conducted in a proper manner. A prepasteurization standard of four-hour methylene blue reduction would be required.

10. In transit to the city the milk would be protected and kept cold (temperature less than 50° F.).

11. At the city depot all apparatus, such as tanks, clarifiers, separators, pasteurizers and bottling machines, would be kept scrupulously clean and sterilized daily with steam.

12. Pasteurization would be carried out at the city depot (vide 2 above). The control of the efficiency of the process would be made by the phosphatase test.

13. The pasteurized milk would be bottled by machinery in sterilized bottles mechanically fitted with sterile seal caps. Sterile waxed cartons may be found satisfactory and could be used to some extent in place of bottles.

14. The distribution of milk in the metropolitan area would be directed, or perhaps wholly conducted, by the metropolitan milk board.

15. All milk sold in the city area would be bottled. Except for some institutions, no bulk supplies of milk would be distributed in the metropolitan area; insanitary can-dipping would be a thing of the past.

16. All containers used in bringing milk to the city depot would be cleaned and sterilized before being returned to the dairy farm, where they would again be sterilized just prior to being refilled.

17. There would be a regular laboratory check on the various stages in the handling of the milk from cow to consumer. The conduct of well-equipped chemical and bacteriological laboratories, staffed by trained technicians, would be a feature of the milk board's work.

18. A system of licensing of farms, and the education of farm staffs and all other milk handlers would ensure observance of the above requirements. Without trained personnel the scheme would surely fail.

Conclusion.

In essence, dairying is a business best conducted on large-scale lines, under strict supervision by some public authority. The treatment and distribution of the milk are probably best conducted as a direct function of the controlling authority.

Too long has dairying been largely a matter of small herds, inadequately supervised. Too long has the care of the most vulnerable of all our foodstuffs been left largely to chance. In the metropolitan area of Adelaide the meat supply was dealt with in a drastic fashion and in accordance with the modern principles of hygiene—yet meat is far less vulnerable than milk. Is it proper, is it safe, to allow the milk supply to go any longer without similar checks and controls?

It is not hard to outline a scheme; but that is a mere beginning. The scheme requires much careful detailed planning, a large group of trained officers, much apparatus, and a good deal of money. Little can be done while the war lasts, but the proper organization and control of Adelaide's milk supply rank as a post-war project of the highest importance.

A final point: dried milk powder, especially that prepared by modern spray-drying methods, is a nutritive product of high value; it is about equal to "pasteurized milk." It is more expensive to produce, but it "reconstitutes" easily; its good keeping quality and its safety are commendable features. Spray-drying may be the method of the future.

THE HIGH NUTRITIVE VALUE OF SKIM MILK.

By R. C. HUTCHINSON, D.Sc.,
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AUSTRALIA'S annual butter production is approximately 500,000,000 pounds. During the manufacture of this butter 9,000,000,000 pounds of fresh skim milk become available. On a dry matter basis, this milk contains 837,000,000 pounds of the highest quality food nutrients known to man. These nutrients consist of lactose, milk protein, mineral matter, milk fat and vitamins.

Because of the popular prejudice against it, fresh skim milk is not in demand as a food for human consumption. A small amount is used in the manufacture of skim milk powder; but most of the skim milk produced in Australia is used for no better purpose than the feeding of pigs and dairy calves. The use of skim milk for such a purpose constitutes a colossal social and economic waste, for although skim milk has not the same nutritive value as whole milk, it has nevertheless a nutritive value considerably higher than that of most foodstuffs, the exceptions being mostly dairy products containing a high proportion of skim milk solids.

The following data serve to illustrate the wastefulness of feeding skim milk to pigs. When skim milk is fed to pigs, only 13% to 16% of the protein is returned in the form of human food, the remaining 84% to 87% being wasted (Eckles, Combs and Macy, 1943). If skim milk is used for direct human consumption, approximately 98% of the protein is digested, only about 2% being wasted.

Australia is not the only country in which enormous quantities of skim milk are fed to animals; but, of the important butter-producing countries, she is among the last to recognize the high nutritive value of skim milk and to adopt a policy fostering its greater utilization as a food for human consumption.

Skim Milk in Human Nutrition.

In a report from the League of Nations (1937) it is stated that "the special nutritive value of milk lies in its mineral and protein content and this is in no way reduced through the removal of the butter fat". Actually, skim milk contains more mineral matter and protein than whole milk, and the removal of the fat is frequently advantageous. Because of its low fat content, skim milk leaves the stomach more rapidly than whole milk, and, consequently, much larger quantities of skim milk can be consumed before an uncomfortable feeling of fullness is experienced (Hutchinson).

A few years ago an interesting experiment, lasting for seven months, was conducted in Scotland (Orr, 1928). Seven groups of children, each numbering 40 to 50, were given a daily supplement of whole milk, and seven similar groups a daily supplement of skim milk. The ages of the children ranged from five to fourteen years, and they were each given three-quarters of a pint to one and a quarter pints of milk per day, the individual amount depending upon the child's age. At the end of the experimental period, the children receiving skim milk had made the same accelerated gains in height and the same improvement in general condition as the children receiving whole milk. Hence it was concluded that "separated milk is of great value in promoting growth. Its nutritive value for children would appear to be under-estimated".

During the past decade a number of other experiments have also been conducted, in which skim milk has supplemented the diets of children with favourable results.

Several of these experiments were conducted in India. The first (Aykroyd, Krishnan and Madhava, 1937) was conducted on 122 boys, aged nine to seventeen years, of the depressed class, living in a residential hostel. The diet was almost entirely vegetarian, and the boys were in a fairly good state of nutrition. Approximately half the boys received a supplement of one ounce of skim milk powder per day for three months, when the average increases in weight and height were approximately double those of boys in the control group. Later, the groups were reversed, and again the group receiving skim milk powder showed greater increases in both weight and height than the control group. Improvements in health and general appearance were also pronounced. Further evidence of the value of skim milk was supplied from two other hostels for boys and girls, where the diet was somewhat similar. In these latter experiments stomatitis was prevalent; but this was rapidly cured by the addition of skim milk to the diet.

In two other experiments (Krishnan and Mitra, 1938), day-school children, aged from six to twelve years, of the poorer classes, were used. In the first, two groups of 20 boys were selected; one group received eight ounces of liquid skim milk per head per day for three months, whilst the other acted as control. In the group receiving skim milk the average increase in weight was more than double and in height nearly double that of the control group. In the second experiment, 48 boys were divided into two groups of 24 each, and 36 girls into two groups of 18 each. One group of boys and one group of girls were given eight ounces per day of reconstituted skim milk, while the second group of boys and girls were given one ounce of biscuit, with a calorific value equivalent to the skim milk. For both boys and girls the average increases in height and weight were again most pronounced.

During the winter and spring of 1936 (Hunt, 1937), the Bureau of Home Economics in the United States of America made a study of the effects of dried skim milk supplements on low-cost diets. Two hundred and thirteen pre-school Negro boys, all of whom lived at home, were the subjects. The diets of approximately one-half of the children were supplemented regularly with dried skim milk. At the end of the experiment the average increment in stature was greater for the supplemented group than for the unsupplemented group, and the increments were more homogeneous.

In another experiment (Roberts, Carlson and MacNair, 1934) two institutions, housing 25 and 30 children respectively, were used, one as a control and the other as an experimental group. Dry skim milk (equivalent to one-third of a quart) was supplied to the experimental group daily for three months. The addition of this milk to the diet increased its calcium content by 0.3 to 0.5 grammes and the protein content by more than 10 grammes per day.

Skim milk containing 1% of fat and added lactic acid has been found of value in the following conditions, principally the first: (i) in diarrhoeal diseases in artificially fed infants; (ii) for premature and debilitated infants for whom breast milk is unobtainable; (iii) to supplement breast milk when this is insufficient; (iv) for infants who do not tolerate whole milk; (v) in the treatment of habitual vomiting (Saldun, 1931).

Composition of Skim Milk.

The average composition of skim milk is given in Table I. Fresh skim milk is comparatively low in total

TABLE I.
Major Constituents of Skim Milk.

Constituent.	Fresh.	Concentrated.	Powdered.
Lactose	4.9%	14.7%	50.9%
Milk protein	3.5%	10.5%	36.4%
Mineral matter	0.8%	2.4%	8.3%
Milk fat	0.1%	0.3%	1.0%
Vitamins	+	+	+

solids, but its high nutritive value does not depend upon a high concentration of solid matter so much as on the

unusual properties of its individual constituents. In addition to being a carbohydrate with a high nutritive value, lactose possesses the unique property of transforming the intestinal flora from one in which Gram-negative putrefactive organisms predominate to one consisting almost exclusively of Gram-positive acidophilic types. Milk protein, consisting of casein, lactalbumin and lactoglobulin, contains every amino-acid discovered to date. All the essential mineral elements are to be found in skim milk, which is man's best source of calcium.

Skim milk powder has a high concentration of total solids and a correspondingly high nutritive value; but, because skim milk powder is never consumed as such, this is of commercial rather than nutritive importance.

Sweetened concentrated skim milk is skim milk concentrate to which a considerable amount of cane sugar has been added. It may have the following composition: sucrose, 45%; lactose, 14.3%; milk protein, 9.7%; milk fat, 0.3%; mineral matter, 2.3% ("Food Industries Manual", 1944).

As a by-product of the Australian butter industry, approximately 9,000,000,000 pounds of fresh skim milk are made available each year. The composition of this milk would agree closely with the figures given in Table I, and it would contain approximately 441,000,000 pounds of lactose, 315,000,000 pounds of milk protein, 72,000,000 pounds of mineral matter, 9,000,000 pounds of milk fat, and vitamins.

Fresh, concentrated and powdered skim milk contain approximately 36, 107 and 372 Calories per 100 grammes respectively. These figures depend upon the composition of the skim milk and upon the composition of the whole milk from which it originated. It has been shown that the calorific value of skim milk increases by approximately 22 calories for each 1% increase in the fat percentage of the original milk (Glad, 1934). Sweetened concentrated skim milk may contain 286 Calories per 100 grammes ("Food Industries Manual", 1944).

Milk Fat.

Table I gives the fat content of skim-milk as 0.1%, but it is sometimes lower than this. Although milk fat has a high nutritive value, its importance in relation to the solids-not-fat is grossly overrated. Of the two parts of milk, the solids-not-fat, or skim milk solids, are undoubtedly the more valuable.

Skim milk is an excellent, though extravagant, animal feed, and during its use for such a purpose it has been proved conclusively that skim milk solids are excellent raw materials from which body fat can be synthesized.

Because of the low fat content of skim milk, it is important to know whether an almost complete absence of milk fat adversely affects the absorption and utilization of the other milk solids. Information on this point is fragmentary.

From the results of two experiments (Schantz, Elvehjem and Hart, 1938; Schantz and Krewson, 1939) it would appear that lactose is more completely absorbed in the presence of certain fats, but in this respect milk fat appears to be no more efficient than several other fats which are normally present in a mixed diet.

Milk protein may also be more completely absorbed in the presence of fat, but again there is no evidence that milk fat is any better than other fats normally present in the diet.

In 1920, Holt, Courtney and Fales discovered that the utilization of calcium by infants was augmented by fat in the diet, and in 1932 Boyd, Crum and Lyman observed an increased absorption of calcium and phosphorus from the intestines of rats when fat was added to the diet. In experiments conducted on nine adult males it was found that when a diet poor in calcium was supplemented with liquid whole milk or liquid skim milk the calcium utilization was the same in each case (Steggerda and Mitchell, 1941). Lard and oleic acid both have definite antirachitic properties (Jones, 1940), and it has been found that the antirachitic activity of a fat is due to the fatty acids and not to a specific compound (Kon and

Booth, 1933 and 1934). It would therefore appear that, although calcium, phosphorus and probably other mineral elements are more completely utilized in the presence of fat, this fat need not be milk fat.

Utilization of Skim Milk.

Unless some abnormal contributing factor was present, such as an acute shortage of fresh whole milk, it would take many years to create a large public demand for fresh skim milk. The misconception that skim milk is whole milk from which all the goodness has been extracted is so firmly embedded in the minds of the people that only a considerable period of time and an enormous amount of propaganda would correct it. Powdered skim milk is in a slightly more favourable position, for it has now been on the Australian market for many years and is in limited demand as an ingredient for certain foodstuffs.

The best way of introducing fresh skim milk to the Australian public would probably be by manufacturing it into products the names of which do not include the term "skim milk". This could be accomplished by introducing a number of dairy products new to Australia. These products can be conveniently divided into two groups: (a) unfermented skim milk products; (b) fermented skim milk products. Foremost in the first group would be concentrated skim milk, sweetened or unsweetened. Small quantities of unsweetened, concentrated skim milk have been made in Australia, although the product has never appeared on the open market. It can be cheaply prepared in a Kestner film type of continuous evaporator, when the loss in nutritive value is insignificant. The composition of a concentrated skim milk in which the original volume was reduced to one-third has already been given. With little extra expense this milk could be fortified with the fat-soluble vitamins.

Carbonated milk and milk champagnes are usually made from skim milk. They consist essentially of sweetened and flavoured skim milk, whole or diluted, to which carbon dioxide has been added. In Germany, before the war, skim milk with 10% to 15% added natural fruit juice was popular. Because the flavour is not materially influenced by its fat content, chocolate milk drinks are also frequently prepared from skim milk.

Experiments have led to the manufacture of fruit-flavoured skim milk jellies (Ziegelmeier, 1932), and a means has also been found to combine skim milk with lecithin and to make this product available in powder form (Rewald, 1932). A fairly stable foam can be produced from concentrated skim milk (Webb, 1941).

In the second group, cheeses are perhaps of most importance. The two most popular skim milk cheeses are Dorset and cottage. Dorset is a blue-veined cheese originally manufactured in the counties of Dorset, Devon and Somerset in England. Its surface is rough and brown and the texture loose and crumbly, a blue mould being evenly distributed throughout. Cottage cheese is an unripened soft cheese, of which there are several distinct varieties. Because of its high moisture content it has comparatively poor keeping qualities. Cheddar cheese may also be made from skim milk.

On a dry matter basis, skim milk cheeses are more nutritious than ordinary whole milk or cream cheeses, for in place of milk fat they contain solids-not-fat, which are the most valuable part of milk. They have a higher protein and mineral matter content than either beef or lamb.

Yogurt, kefir, buttermilk and some other liquid fermented milk preparations can be made from skimmed or partly skimmed milk. In the case of yogurt, concentrated milk is used, and the final product can be of liquid consistency or a snow-white, custard-like curd. These forms of fermented milk are delightful, refreshing drinks, which depend upon microorganisms for their desirable characteristics. The principal product formed during fermentation is lactic acid, and, in the case of kefir, a small amount of alcohol. Because the casein is precipitated in a finely divided condition, these preparations are more digestible than whole milk.

Conclusion.

Lactose, proteins, mineral matter and milk fat constitute approximately one-tenth the weight of fresh skim milk, the remaining nine-tenths being water. It has been stated that, because of its high water content, it is too expensive to remove skim milk from the farm. This would not be the case if skim milk took its proper place in the human dietary, for it contains no more water than most fresh vegetables and many fruits. In fact, the dairy farmer is more favourably situated than either the vegetable grower or orchardist, for raw milk has seldom to be carted long distances, whereas fresh vegetables and fruit have frequently to be transported interstate.

Every available wholesome food should have a permanent place in the national dietary, and the place occupied by skim milk should be very prominent—not as a substitute for whole milk, but as a valuable supplement when adequate supplies of whole milk are too expensive or not available.

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Reports of Cases.

A CASE OF BURNS ASSOCIATED WITH BILATERAL RETINITIS.

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AND

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THE following case is thought worthy of being placed on record, because neither of us has seen a similar condition before, or read of it in the literature on burns.

Clinical Record.

Private B., aged twenty-one years, was admitted to a casualty clearing station on December 4, 1944, suffering from extensive second degree burns caused by the accidental ignition of range fuel—a low-octane petrol. The back, both upper limbs and both lower limbs were involved, to an extent of 50% of the skin surface. One hour after the accident intravenous administration of serum was begun, and the patient received a total of six litres in the first eighteen hours. This effectively controlled haemoconcentration. As soon as the serum administration was started the burns were cleansed with soap and water, dressed with "Vaseline" gauze and cotton wool and firmly bandaged. Morphine administered intravenously gave sufficient analgesia for cleansing. The usual toxicæmic symptoms developed on the second and third days, but were never alarming. Widespread sepsis occurred in the burned areas of the back and thigh; but this did not prevent complete healing of the upper limbs, the back and most of the lower limbs by the twenty-second day. Two large areas of complete skin destruction, each measuring ten by four inches, remained in the inner aspect of each thigh, two smaller patches being present on the left leg. Cultures in the earlier stages yielded *Staphylococcus aureus* and *Bacillus proteus*. The hemolytic streptococcus appeared later in the residual unhealed areas. The intramuscular administration of penicillin, the total dose being 1,800,000 units, from the second to the twelfth day, appeared to have little effect on the infection. Daily chemical and microscopic urine examinations in the early stages revealed no abnormality. The blood pressure, estimated on the thirteenth day, was 120 millimetres of mercury, systolic, and 70, diastolic. A total of 3,400 cubic centimetres of blood was given by transfusion in the second and third weeks to control anaemia. At the end of the fourth week evacuation to a base unit on the mainland for skin grafting was arranged, the soldier being then in good general condition.

On the second day of his illness he complained of impaired vision, and this persisted. Inquiries from surgeons versed in the literature of burns suggest that the eye symptoms and signs present in this case are not a common accompaniment of the condition and that they may not have been reported in articles of this war vintage.

The occurrence of eye symptoms so soon after the injury makes it difficult to think that they were not caused by it. The patient stated that prior to the accident his vision was good in each eye. When it was tested on December 19, the right eye was only able to count fingers at four feet and the left eye to count fingers at five feet.

As the patient had to be nursed face downwards and movement caused him considerable pain, no careful examination of his eye grounds was made till December 19. Then it was seen that the macula of each eye was surrounded by a large white "cotton wool" patch somewhat similar to those seen in malignant hypertension. In the centre of this patch the macula showed as a dull red spot. This part of the fundus receives its blood supply from the chorioid circulation, which apparently escaped damage, and not from the retinal vessels, which were the ones affected. Five or six smaller patches were scattered on the posterior portion of each fundus. Only one small hemorrhage was seen. The picture corresponded well with the duration of the symptoms.

When the patient was last examined before evacuation, on January 7, 1945, his vision had improved. The visual acuity of the right eye was $\frac{1}{200}$ and that of the left eye $\frac{1}{200}$ partly. The peripheral patches had largely absorbed and those surrounding the maculae were absorbing.

Comment.

The eye condition may be summarized as follows:

1. The exudate was limited to the retinal layers.
2. The damage was presumably caused by breakdown products of the initial tissue destruction, which affected the permeability of the capillaries supplied by the retinal vessels.

It would be interesting to know how frequently in cases of extensive burns signs of retinitis are present, perhaps less marked and more fleeting than those seen in this case.

Acknowledgement.

We wish to acknowledge the permission of the Director-General of Medical Services to publish this report.

Reviews.**A YEAR BOOK IN PÆDIATRICS.**

"THE 1944 YEAR BOOK OF PEDIATRICS" has been published and will be welcomed by all who practise this branch of medicine as well as by general practitioners who have to deal with many sick children in the course of their everyday work. Once more Isaac A. Abt is the editor, and he has had the assistance of Arthur F. Abt. Though the general get-up of the book has had to conform to certain wartime requirements, it is none the less valuable on that account.

The book is divided into 22 sections, each dealing with a different disease or group of diseases affecting different organs or systems as well as with different subjects. Thus there are sections dealing with rheumatism, tuberculosis, syphilis and rickets; there are also sections devoted to infectious diseases, respiratory diseases, glands of internal secretion, nervous and mental conditions; and there are sections in which therapeutics and toxicology, surgery and anaesthesia and so on, are discussed. As readers are probably well aware, these sections consist of abstracts of articles from different journals.

The opening section on the newborn begins appropriately with reference to the care of the fetus during labour. The subject of infant mortality is considered subsequently in its different aspects. W. K. McIntyre's paper from this journal is mentioned. In the section on infectious diseases the work of Sauer and his collaborators on the use of mixtures of diphtheria toxoid and pertussis vaccine is described. Malaria in childhood as occurring in Turkey has been discussed by Eckstein, of Ankara, who holds that the younger the child, the less likely is the malaria to conform to the text-book type. The work of Gregg, of Swan and his co-workers, of Reese and of Erickson on the occurrence of congenital abnormalities following the infection of the mother with rubella is mentioned, and the editor remarks that it is obvious that these reported series of cases may not warrant universal application. On the other hand, of course, they may, and the plea for more experience and the recording of further observations should be heeded. Measles, mumps and meningitis are considered. In a reference to the basic considerations needed for the judging of therapeutic results in poliomyelitis we read that it is "unfortunate if the proponent of a system insists that only he or she can practise it efficiently and decries efforts of his disciples when desired results are not always obtained. In difficult cases the proponent of a therapy has a 'way out'; he can claim that he was not actually in charge of the case, that if he had been the outcome would have been different". This attitude indeed does "disturb the minds of troubled parents". A section on nutrition follows on the feeding of infants. In the former the celiac syndrome and pancreatic conditions are discussed by several authors. One of the most important of these contributions has to do with pancreatic function and disease in early life. Chemotherapy in the intestinal diseases of children is a subject of which more will be heard. In the section on rheumatism Scott's survey of rheumatic infection at the Children's Hospital, Melbourne, is described. This section deals with articles on almost every aspect of the rheumatism problem. In the section on blood diseases reference is made to deficiency anaemias, erythroblastic anaemia, pulmonary hæmosiderosis, favism, fibrinogen deficiency as a factor in hæmorrhagic disease, the Rh factor and *erythroblastosis foetalis*. In the section on tuberculosis an important reference is made to

tuberculosis among children of the pre-school age. Under the heading of "Glands of Internal Secretion" is an account of a study of personalities of children with diabetes—an aspect of the subject that may be new to many clinicians. The section on nervous and mental diseases includes a not very convincing reference to psychogenic fever in infants. In remaining sections prominent subjects are uro-genital anomalies, treatment of burns, lactic acid as a corrosive poison, congenital torticollis and deafness and diseases of the ear in infancy and childhood.

This book is suited either to systematic study or to capricious browsing. The index is adequate.

HYPNOANALYSIS IN CRIMINOLOGY.

THE author of the book "Rebel without a Cause", Robert M. Lindner, claims to have developed a technique which produced a thorough-going reformation of a criminal personality, and states that it proved effective in regard to other psychopathic persons as well as several suffering from homosexual perversion.¹ He asserts also that these, together with some psychoneurotics, were treated in a fraction of the time required for psychoanalysis.

He records what was said by one criminal psychopath during nearly fifty hours of treatment during which the technique of free association was reinforced by occasional sessions of hypnosis (hypnoanalysis). Though interpretations were made along Freudian lines, the author actually exhorted his subject to have confidence in him and did not attempt to bring out the full significance of the patient's emotional attitudes to his physician, which process constitutes a basic factor in psychoanalysis. As a consequence of soft-peddalling the transference, the patient appears to have acquired intellectual insight rather than emotional conviction, but in the last session of treatment the author used suggestion during hypnosis as an adjunct to the previous investigations and explanations.

If such a technique, which falls short of the aims of psychoanalysis, is as effective as claimed by the author, its comparatively short duration will constitute a practical advantage which will be particularly valuable in the treatment of criminality and perversion. In addition, if suggestion were discarded and a thorough analysis of the transference carried out, hypnoanalysis might well prove capable of bringing about a deep and permanent alteration of the personality in shorter time than is possible by unaided psychoanalysis, not only in psychopaths but also in all types of psychoneurotic patients.

Notes on Books, Current Journals and New Appliances.**"WHAT TO DO IN CASES OF POISONING."**

THERE can be few books of more importance to the medical practitioner than "Murrell's What to do in Cases of Poisoning". The first edition was published by the late Dr. W. Murrell in 1881; the fifteenth edition has now made its appearance.² This edition has been edited by Dr. H. G. Broadbridge. When a medical practitioner is summoned to the aid of a person supposed to be poisoned, obviously he must go at once. Equally clearly he is useless unless he knows what to do. This book will tell him. Many generations of doctors have known and counted the work as one of the most valuable in their armamentarium. For those who do not know it, there is only one word of advice, and that is to make good the omission. The opening sections are full of useful information of the classification of poisons, the diagnosis of poisoning, the preservation of specimens, antidotes, the legal aspect and so on. The rest of the book is given over to the consideration of individual poisons. Each is dealt with in turn, symptoms and treatment being described.

¹"Rebel without a Cause: The Hypnoanalysis of a Criminal Psychopath", by Robert M. Lindner, Ph.D., with an introduction by Sheldon Glueck, LL.B., Ph.D., and Eleanor T. Glueck, Ed.D.; 1944. New York: Grune and Stratton. 8" x 5½", pp. 310. Price: \$4.00.

²"Murrell's What to do in Cases of Poisoning", by Harold G. Broadbridge, M.B., B.S. (London); Fifteenth Edition; 1944. London: H. K. Lewis and Company Limited. 6½" x 4", pp. 210. Price: 8s. net.

¹"The 1944 Year Book of Pediatrics", edited by Isaac A. Abt, D.Sc., M.D., with the collaboration of Arthur F. Abt, B.S., M.D., Comdr., M.C., U.S.N.R.; 1944. Chicago: The Year Book Publishers. 7" x 4½", pp. 448, with many illustrations. Price: \$3.00. Australian price: 23s. 6d.

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PHYSICAL MEDICINE AND ITS PRACTICE IN THE FUTURE.

ANY reference to rehabilitation of members of the armed forces serving in the present war at once brings before the mind pictures of men with broken bodies and what are known as shattered nerves, men no longer needed in the fighting ranks, and shortly to be returned to civilian life. Not only these men, but others with lesser disabilities and plain war weariness will pass before the imagination in their crowded ranks. Any plan to cover the needs of these members of the services on or before their discharge will inevitably include references to the use of physical methods and agents—exercise, massage, light, heat and so on. As a matter of fact tentative schemes have been drawn up in different parts of the Commonwealth and physical therapy has been one of their prominent features. Most people who have had experience of physical therapy will agree that its virtues have not received proper recognition and that failure to use it has retarded, if not prevented, the recovery of many a sick or injured individual. The enormous numbers of service men and women who will need different forms of treatment before they will be fit to take their places once more in civilian society, are quite sufficient to justify a plea for a reawakening of interest in physical therapy, a revaluation of its possibilities and following thereon, its wider adoption. But physical therapy has an important place in civilian medical practice, a place which for certain reasons it has not been allowed to fill, and on that account it should engage the attention of every practitioner of medicine. At the last annual meeting of the American Medical Association, F. H. Krusen, of the Mayo Clinic, read a paper on the future of physical medicine¹ in which he pointed out that physical agents are employed not only for treatment but also for diagnosis. For this reason, he declared, the term physical medicine, widely used in Great Britain, was gradually replacing the designation physical

therapy. Krusen's definition of physical medicine is inclusive—physical medicine "includes the employment of physical and other effective properties of light, heat, cold, water, electricity, massage, manipulation, exercises and mechanical devices for physical and occupational therapy in the diagnosis and treatment of disease". To Krusen physical medicine is applied biophysics.

If we would arouse interest in physical medicine among medical practitioners, we should do well to ask first of all why it has been, and is still, rejected by many. There would appear to be two chief reasons. The first is that the subject does not receive the attention that it should receive during the student's university and hospital training. The second has a more subtle action, so much so that its existence may be denied—many of the methods used in physical medicine are practised by non-medical persons, and for this reason they may be subconsciously undervalued or neglected by medical practitioners. With this idea may come the suggestion that some of the methods of physical medicine are too simple for elaboration as part of medical treatment. It cannot be expected that medical practitioners will be enthusiastic about physical methods of treatment if during their student days they have not received adequate tuition in physical medicine or seen it practised with any enthusiasm by their teachers. The range of physical medicine is wide, and it is apparent that every practitioner uses physical methods of treatment from time to time—when he directs his patient, for example, to use his muscles in a graduated way during convalescence, he is practising physical medicine; when he applies heat to a painful or inflamed surface, when he makes the patient adopt certain postures, he is practising physical medicine. But the practice of physical medicine may call for special apparatus, as when diathermy or X-radiation is used, or for special training as in the use of massage. It is thus clear that if a thorough knowledge of physical medicine is to be inculcated, special teaching will be necessary—and this apart altogether from X rays and their uses, a subject which has long been regarded as one for special study. In other parts of the world special attention has been paid to physical medicine, and in America the American Medical Association has furthered its study by the establishment of its Council on Physical Medicine. It is also important to remember that last year a document known as the Baruch Report was published in the United States. This report was drawn up by a committee appointed by Mr. Bernard M. Baruch, an American statesman, and comprised eight members, of whom Dr. Ray Lyman Wilbur, of Stanford University, was chairman. The report, a brochure of 120 pages, will well repay study by all who have a special interest in physical medicine. In his address to which reference has been made, Krusen—he was a member of the Baruch Committee—discussed its recommendations. One of the most important of these is a plea for research. Advice on research in physical medicine and on its teaching should, it is held, be given by an advisory body of experts which should be set up, and teaching and research centres should be established at interested medical schools. Another recommendation is that fellowships and "residencies" in physical medicine should be established.

When experts like Krusen and the other members of the Baruch Committee write about physical medicine they naturally look on it as a special branch of medicine to which a practitioner may devote his whole attention.

¹ The Journal of the American Medical Association, August 19, 1944.

Before this point of view is accepted by the general run of practitioners, they will need to have clearer ideas about it than they have had in the past. General practitioners will also have to understand that they in their practices must not be strangers to it. Particularly in the sphere of preventive physical medicine, which is the same as training to achieve physical fitness, they can exercise a dominant influence. To this end an increasing attention will need to be given to the subject in medical schools. In the full practice of physical medicine there is a close relationship with occupational therapy on the one hand and with vocational training as part of rehabilitation of members of the armed forces on the other. And here we see at once that on account of the large numbers who will need treatment many recruits to the subject will have to be found. This means that a scheme of training will have to be devised. In this scheme the advisory body, the teaching centres, the research activities, the fellowships and so on mentioned in the Baruch Report will find a place. In Australia it should not be difficult to train practitioners in the special aspects of physical medicine. The three services have many medical officers who would be suitable for this work. The post-graduate training that they are to receive on demobilization might well consist of a course of study in physical medicine. If this was done, two objectives would be achieved at once—the needs of demobilized medical officers would be met and provision would be made for at least part of the treatment needed by military personnel seeking rehabilitation.

Current Comment.

A NEUROMUSCULAR SYNDROME DUE TO EXHAUSTION.

THE physiological aspects of fatigue and in particular of exhaustion states are of great importance to the physician. J. M. Nielsen has described a syndrome in which extreme muscular weakness is a prominent feature, and which furnished an interesting text for further discussions.¹ Four case histories are given in his paper, three of his own and one published by C. Marsh. These records set forth a connected story of long hard work followed by excessive physical exertion, after which rapid exhaustion and collapse occurred with severe muscular wasting. Spontaneous fasciculation and fibrillation of muscles were observed in these cases. In one case some sensory change was also present. In the case described by Marsh biopsy was done on one deltoid muscle, but no abnormality was found.

Nielsen considers that this condition is due to neuromuscular exhaustion. In each case to a long period of overwork was added a final excessive expenditure of energy over a short time, the result being exhaustion and such extreme muscular weakness that the subject was helpless. Psychomotor restlessness was observed with the weakness, making relaxation difficult to obtain. Cramps were also observed, and insomnia was troublesome. With care and rest and adequate feeding recovery gradually occurred, but the muscular atrophy was not entirely made good, the girdle muscles in particular remaining weak. Further, the former level of general efficiency was not regained. Opportunity has not been afforded to investigate creatine metabolism, but the author suggests that in the future full and early biochemical observations should be made in other cases. He remarks that there surely cannot be anything really new in his description, for in times of war and famine the victims of exhaustion and starvation

no doubt show similar signs. But he lays stress on the possibility that such a condition may arise in everyday circumstances, and is insistent on the danger inherent in the euphoria shown by the patients during the hyperactive period which initiated their collapse. This euphoric state has tended to persist, and through unwise spurts of energy during the recovery period recurrences have been observed. The discussion of the condition raises some interesting points. Nielsen makes a distinction between fibrillation and fasciculation of muscle. The former term he restricts to the spontaneous contraction of small units of muscular tissue which are supplied each by a single nerve fibre. By the latter he means the contraction of the coarser fascicles which receive a nerve supply from several twigs, and are vascular rather than nervous units. It is pointed out that if idiomuscular contractions were caused by abnormality in the constituents of the blood reaching them, this would result from stimulation of the sarcoplasm rather than the sarcolemma which receives the nervous impulse. In hyperhidrosis and other causes of sodium lack this mechanism probably explains the observed muscular twitchings. There is perhaps some analogy here with the phenomenon of mechanical irritability of muscle, so well seen in the pectoral muscle, for example, of the subjects of loss of weight, especially those with pulmonary tuberculosis and pyloric obstruction. Tapping the pectoral muscle may produce either or both of two responses: a quick flick of a little muscle fascicle, or a heaving up of a tiny muscular mound which slowly subsides, or which in occasional cases divides and runs like a wave crest along to each end of the muscle bundle. The quick response is due to stimulation of a nerve fibril or ending, the other to direct stimulation of muscle.

When we consider some other states in which great muscular weakness occurs some light seems to shine on the possible mechanism. Nielsen points out that atrophy and fasciculation of the muscles of the arm are sometimes observed after the use of pneumatic drills, and he ascribes to the effects of vibration the local degeneration that has been demonstrated in the cervical part of the spinal cord. Much more interesting are the pathological states of muscle found in thyrotoxicosis. Modern study of thyroid disease, well summarized in a paper of S. Soskin and R. Levine, indicates several agencies by which symptoms may arise.² These are the influence of the thyrotropic hormone of the pituitary gland, the influence of thyroxine, and deficiencies in vitamins. The last mentioned may be of considerable importance, and there is evidence that the muscular weakness in hyperthyroidism is due to a relative deficiency in pyridoxine, a component of the B complex.

It would not seem unreasonable to direct our thoughts along these lines in these strange neuromuscular exhaustion states. Indeed there seems to be here something to interest not only the general practitioner of medicine or surgery, but also the psychiatrist in his excursions in and above the hypothalamus, and the biochemist in his analyses of the stream of life.

THE EFFECTS OF TRAUMA ON THE HEART.

CERTAIN aspects of the effects of trauma on the heart are well understood, such as the results of actual wounds of the heart and pericardium. These, together with rupture of the heart and traumatic valvular lesions, have been well studied in the past. Cardiac strain has been the subject of controversy, though it is agreed that it must be exceedingly difficult to damage a healthy heart by purely intrinsic effort. But recently more attention has been paid to the results of direct or indirect violence to the heart, and now that more complete cardiac studies are somewhat of a routine procedure where suspicion of pathological change is entertained, it is to be hoped that accurate knowledge will not only be gained but widely disseminated.

Hugh Barber has published a comprehensive review of the present position with regard to the various ways by which the heart may be affected by trauma.³ He deals

¹ *The Journal of the American Medical Association*, November 25, 1944.

² *Archives of Internal Medicine*, November, 1944.

³ *The Quarterly Journal of Medicine*, October, 1944.

only with the general principles of penetrating wounds of the heart and pericardium. In these cases direct surgical approach to the heart is no longer a novelty, and the danger of tamponade of the heart by blood in the pericardial sac is well understood. The position is not quite so clear in respect of non-penetrating injuries. Rupture of the heart has followed direct violence even without fracture of the thoracic cage. Short of this extreme effect contusion may occur as the result of all manner of accidents. Blast injury, studied during the last few years, has damaged the myocardium in numbers of cases, but here, as in other examples of trauma to the thorax, there is usually damage done to other structures.

This problem has been studied from the experimental angle also in animals, as Barber points out, and this knowledge has helped in the understanding of the important question of the recognition and importance of recoverable contusions of the myocardium. Barber has observed 75 patients in the Derbyshire Royal Infirmary who were the subjects of accident. All the patients were seen within forty-eight hours of the accident, and full physical examination was made, and serial electrocardiograms were taken with the four standard leads. In 20 of the 75 cases there were abnormalities in the tracings, but in 17 of these aberrations disappeared in a comparatively short time, which in some cases extended to a period of a month or more. None of these patients had a pneumothorax, which might, of course, have confused the issue. In one case a partial heart block persisted permanently. In two others death resulted from extensive pulmonary damage, and it is perhaps of interest that in one of these paroxysmal tachycardia was noted, and bruising of the right auricle was found at autopsy. Premature contractions were not uncommon, but wisely no attempt was made to ascribe any significance to them. The changes found in the electrocardiogram involved the QRS complex and T waves in the majority of cases. One point which is emphasized in this paper is that a latent period between the accident and the appearance of abnormal cardiac signs is not very unusual; this period may even extend to several days. The symptoms referable to cardiac trauma are summarized by Barber as including dyspnoea, orthopnoea, faintness, precordial discomfort or pain, and there may be signs of pulmonary oedema and lowering of blood pressure. Little is known accurately of the sequels of myocardial contusion. Barber's observations would encourage us to believe that usually recovery is satisfactory; but permanent damage has been recorded. The subject of *angina pectoris* and coronary occlusion is, of course, beset with difficulties. Anginal pain has been observed following thoracic injury, and has in a number of cases disappeared after a period of rest.

Realizing that in many cases of coronary occlusion no exciting cause can be cited, we must be cautious about drawing deductions concerning the part played by accident. It is quite reasonable that thrombosis of a coronary vessel might occur as part of the lesion due to violence applied to the myocardium, but the occurrence of a coronary lesion following severe strain is a more difficult matter to settle. Barber quotes a few cases that confirm both these possibilities. Disordered rhythm has also been observed as the result of trauma or strain, in particular auricular fibrillation and paroxysmal tachycardia. Flutter has also been seen, and sinus bradycardia, which was observed in experimental animals. That valvular lesions may occur from indirect violence has long been known, and it would appear that direct violence also may occasionally be responsible.

In summing up Barber points out that a diseased heart is more likely to suffer from exceptional strain than a healthy heart, but all will agree with his admission that it is difficult to assess the significance of an injury in these cases. He suggests that primary cardiac strain may occur after an exceptional effort made with fixed chest and closed glottis, and that this might rarely even occur with a healthy heart. In conclusion he states that full examination and electrocardiography have proved their value in cases of accident involving the thorax directly or indirectly, but that investigation has shown that it is

unlikely that even those patients who show some electrocardiographic changes will suffer any permanent cardiac disability. Cardiac trauma is a real entity, though it is rare, but it must always be remembered that though it may not always be easy to establish a diagnosis in these cases it is notoriously easy to establish a neurosis.

THE USE OF TISSUE EXTRACTS AS HYPOTENSIVE AGENTS.

For a good many years certain preparations of tissue extracts have been advised and used for the control of various spastic states of smooth muscle. Such states are vascular disease associated with demonstrable or postulated hypertension and spasmodic contractions of such structures as the bowel, the ureter or the bile passages. It has been claimed that relaxation of plain muscle was produced by preparations of pancreatic tissue in particular, though latterly less has been heard about them. Robert H. Dreisbach; Walton van Winkle and P. J. Hanzlik have published an account of some experimental work carried out by them on two extracts known as padutin and depropanex.¹ They point out that remarkable results have been claimed by some authors from these substances in the treatment of intermittent claudication, ureteral colic, *angina pectoris*, dysmenorrhoea, and other conditions of visceral or vascular spasm. Dreisbach and his colleagues consider that the clinical results have not been adequately controlled or have been vitiated from the scientific point of view by the simultaneous use of opiates or physiotherapy. In spite of this, there seems a firm belief in the minds of some previous writers that the extracts have a hypotensive action. In some instances, in cases of intermittent claudication in particular, it does not follow that relief of vascular spasm will *per se* relieve the symptoms, and therefore amelioration of the clinical condition might not be correctly ascribed to the extracts used. Dreisbach, van Winkle and Hanzlik used an experimental method. Kymographic records of motor activity were made, and for this purpose were used the isolated organs of dogs and rabbits suspended in oxygenated Locke-Ringer solution to which the tested extracts were added. Sections and circular strips of arteries were used, longitudinal muscle of small intestine, and sections of ureter and strips of vesical muscle. The capacity of these tissues to contract was proved by the application of epinephrine or acetylcholine, and in some cases the action of the test extracts on muscle spastically contracted by barium chloride or acetylcholine was also tried. In order to determine whether any action of the extracts was on the muscle or on the intrinsic nerves, an appropriate chemical form of nerve block was used on the various isolated organs. The preservatives in which the tissue extracts are marketed were also tested alone. Padutin was found to exert a depressant action in practically every case on intestinal muscle, ureter and blood vessels. Further inquiry showed, however, that the effect of the 50% glycerin used as a preservative was similar, and the authors conclude that any depression of smooth muscles noted was due predominantly to the glycerin. Depropanex was found to affect various unstriated muscles in different fashion. Arterial and vesical muscle were stimulated independently of the preservative, while intestinal and ureteral muscle were affected only by the preservative. The stimulation found to occur in these experiments could hardly occur in the course of the clinical use of this extract, because a sufficient concentration in the body could not be obtained. Dreisbach and his collaborators believe, after considering all the evidence, that these extracts are not effective as hypotensive agents when acting in the concentrations obtained by ordinary clinical dosage. They remark that specific directions are given that these substances are not to be used by the intravenous route, though it was only by this means that in animals definite reactions could be obtained. It would seem that in the words of these authors an objective experimental basis for the use of these tissue extracts is lacking.

¹ Archives of Internal Medicine, December, 1944.

Abstracts from Medical Literature.

OPHTHALMOLOGY.

Incomplete Avulsion of the Eye.

I. C. MICHAELSON (*The British Journal of Ophthalmology*, September, 1944) describes a case in which a soldier attempted to gouge out the eye of a sailor. Both lids were cut from the inner canthus and flapped outwards on a temporal base. All four recti muscles were severed. The globe was extremely proptosed and could not be replaced. Vitreous haemorrhage had occurred and vision was confined to the perception of hand movements only. Under general anaesthesia a complete repair was done. With difficulty the recti were sought in the orbit and stitched to their insertions. Conjunctiva and lids were repaired. Two years later there was some limitation of movement and diplopia occurred when the patient looked to the left. Visual acuity was $\frac{1}{6}$ and there was an atrophic pallor of the disk. A small operation corrected the diplopia and the man is now back on duty.

Drüsen of the Optic Nerve Simulating Cerebral Tumour.

N. A. SCHLEISINGER, J. WALDMAN AND B. J. ALPERS (*Archives of Ophthalmology*, June, 1944) state that *Drüsen* of the optic nerve constitute a characteristic ophthalmological disorder which was first described in 1858 by Müller. The lesions consist of a variable number of discrete nodules or of a conglomeration of partially fused nodular masses which have a concentrically laminated structure. The nodular masses are not encapsulated. The authors have recently observed two patients who demonstrated that *Drüsen* of the optic nerve may in some instances be associated with clinical features resembling those of tumour of the brain. Pneumoencephalographic study may be necessary in order to establish the correct diagnosis. The outstanding clinical features are headache, obscuring of the margins of the optic disk, with occasional elevation of the disk, and various alterations of the visual field, usually with enlargement of the fovea. It is important to recognize the problem presented in differential diagnosis.

Actinic Keratoconjunctivitis.

R. G. SCOREE AND E. W. F. GRIFFEY (*American Journal of Ophthalmology*, June, 1944) discuss "flash burn" of the eyes, the commonest cause of which is exposure to the welder's arc. They state that the condition is an important industrial disease, particularly in war-time. Ultra-violet irradiation is the causative agent; it produces an irritative and degenerative tissue reaction. With regard to treatment, they point out that on the one hand adrenaline is the most powerful antagonist of the histamine-like substances released in the tissues as a result of the irradiation; on the other hand, before vasodilatation becomes well established (the state of unresponsiveness), the vessels will respond to adrenaline by constriction. Thus their

tone is maintained, and circulatory stasis is prevented; this avoids the piling-up of metabolites in the tissues, with resultant further irritation, vasodilatation and oedema. The appearance of eosinophile cells in addition to the similarity of the tissue reaction to that in anaphylactic protein shock possibly indicates the use of adrenaline on purely theoretical grounds. In the authors' experience, early and prompt instillation of adrenaline had a decidedly beneficial effect in modifying the severity of the subsequent course of "flash burns".

The Lens in Diabetes.

J. G. BELLOWES (*Archives of Ophthalmology*, December, 1944) summarizes the present state of knowledge of the action of hyperglycemia on the lens. The subject naturally resolves itself into two changes: (a) transitory refractive changes and (b) diabetic cataract. In diabetes, hyperopia and less commonly myopia may become less and disappear, but before a myopia clears up the condition always goes to the other extreme and becomes a hyperopia. These changes may be explained on anatomical grounds, loss of ciliary tone, swelling of the ciliary processes, oedema of the choroid or changes in the extrinsic muscles. They may also be explained by physico-chemical factors such as changes in the refraction of the vitreous or swelling of the lens. There are good reasons for believing that swelling of the lens is due not to excess sugar but to the salt retention which occurs in severe cases. True diabetic cataract is characterized by the appearance of fluid vacuoles beneath the capsule of the lens which progress to complete opacity in periods of a few weeks to six months. This type is usually limited to persons of less than thirty-five years old, "snow storm cataract". Since the ravages of diabetes in some respects are similar to those of age it is difficult to assess the influence of diabetes on cataract in the older age groups. It seems certain, however, that at any given age the percentage of diabetics developing cataract is well above the "controls", that this depends more on the severity than the duration of the disease and that the results of operation are not nearly so good. Amongst a mass of debatable observations two chemical facts stand proven: (i) that acetone is a powerful sensitizer of lens protein to light; (ii) that acetone and β -hydroxybutyric acid in concentrations similar to those found in severe diabetes will kill lens epithelium in forty-eight hours.

Spontaneous Retinal Reattachment.

A. KNAPP (*Archives of Ophthalmology*, November, 1944) reports sixteen cases of detachment in which spontaneous "cure" occurred. This occurrence is observed in a small percentage of cases and only when the detachment occupies the lower half of the retina. The detachment is shallow and the upper edge is bound down by chorioidoretinal changes which constitute a most striking sign. The retina in course of time becomes reattached, except for small areas in the periphery where holes or a dialysis may be present. The reattached retina is yellow or grey with wavy lines. Nearly all cases occur in young people in whom degenerative

changes are rare and whose vitreous has a stronger texture than in the old. The question of operation in these cases is of importance. The field defect cannot be restored by late operation. It is stationary and permanent. The only object of an operation is to preserve the macular area if this is not firmly shut off, and the feasibility of this operation depends on the extent and age of the macular change. Notwithstanding the possibility of self-limitation in detachments of the lower segment in young people, operation should always be performed to protect the macula and to preserve the field.

Infection of the Vitreous.

L. VON SALLMAN, K. MEYER AND J. DI GRANDI (*Archives of Ophthalmology*, September, 1944) have attempted to combat infection of the vitreous by injections into it of sulphonamide and penicillin. Chemical estimations have shown that in infections of the eye with *Staphylococcus aureus* treated with intramuscular injections of penicillin and oral administration of sulphonamides, the concentration of these in the aqueous is high, in the vitreous very low. The authors therefore injected directly into the posterior chamber. It was found that sulphacetamide had little effect in checking the spread of the infection and caused a lot of sclerosis. Penicillin, on the other hand, caused little damage to the eye and a complete bacteriostasis lasting for twenty-four hours after each injection. The authors conclude that this new technique may effect a cure in some cases which would otherwise go on to phthisis bulbi.

Detachment of the Choroid.

E. B. SPAETH AND P. DE LONG (*Archives of Ophthalmology*, September, 1944) state that detachment of the choroid is common after cataract operation in cases in which the anterior chamber does not refill for a long time. It is commoner still after a trephining operation for glaucoma. The relation of pre-operative hypertension, post-operative hypotension and failure of the anterior chamber to reform to the duration of the chorioidal detachment is significant. As one would expect, chorioidal detachment has never been noted following cyclodialysis. It is most common after broad iridectomy for acute glaucoma. Fuchs believes that the reason for hypotension in the trephines is a rent or opening in the perichorioidal space leading to excessive filtration, and that only when this closes does the tension approach normal. With the usual chorioidal detachment it is possible to see, behind the lens, a smooth grey semiglobular elevation. It is differentiated from a detachment of the retina by its darker contour and the absence of folds. As the wound closes, and the anterior chamber refills, the detachment disappears spontaneously, regardless of any so-called methods of treatment. In the more severe types the detachment may be hemorrhagic and expulsive, causing loss of vitreous by pressure from behind and in the worst cases expelling the contents of the posterior chamber. In acute glaucoma it is often impossible to inspect the interior of the eye owing to a steamy cornea. After operation in these cases a chorioidal detachment may simulate a new growth, and so

eyes have been enucleated unnecessarily. It has also happened that in routine examination of an eye following injury the same mistake has been made with unfortunate results. The correct procedure in all these cases is to wait, to measure the swelling by comparison with objects of known size, to remember the possibility of a chorioidal detachment, to inspect again and to act accordingly.

Effects of Faradic Currents on the Eye.

HORTON YOUNG (*British Journal of Ophthalmology*, October, 1944) has carried out a series of self experiments to determine the effect of faradic currents on the musculature of the eye. The eye was cocaineized and minimal currents were used for three seconds at one time. The Maddox-wing was used for determining deviation. No subjective visual phenomena such as light flashes were noted. The near point became closer owing to tetanization of the ciliary muscle. In dipters the ciliary spasm amounted to 7.00. Nystagmoid movements were noted. Coincidental with the onset of headache, nausea and then vomiting occurred, parasympathetic in origin. As the experiment was repeated unilateral exophthalmos appeared which lasted for six hours and disappeared only under the influence of sleep. No extrinsic muscle, other than that under the electrode, contracted, and soon the muscle on which the electrode was placed did not go into spasm. Homatropine completely inhibited the effects of faradism on the pupillary and ciliary musculature. Cocaine had a sensory effect only. The outstanding result of the experiment is that faradization of the eye produces effects practically limited to the parasympathetic system. It throws some light on the course of events in exophthalmos and hemiplegia.

OTO-RHINO-LARYNGOLOGY.

The Treatment of Chronic Suppurative Otitis Media by the Local Application of Penicillin and other Drugs.

E. G. COLLINS AND K. E. A. HUGHES (*The Journal of Laryngology and Otology*, March, 1944) report the histories of twenty-three patients who were the subject of repeated bacterial control tests while undergoing treatment alternatively with a variety of medicaments. Not all were given penicillin, for the reason that it was found that in the initial cultures in chronic suppurative otitis media sensitive bacteria were seldom present, and even when found, they were associated with coliform bacilli, *Bacillus proteus* or diphtheroids. While it is acknowledged that the series of cases is too small for very definite clinical conclusions to be reached, the 540 cultures and over 300 smears made reveal some important changes which occurred in the bacterial flora as the result of treatment. Although a staphylococcus was found on only three occasions in initial cultures, yet, after treatment by methods other than penicillin, this organism appeared in pathogenic strain in five other cases. A similar metamorphosis was observed

in those patients who were treated with penicillin, but here it was mainly some of the Gram-negative bacilli which made their first appearance. After or during a course of penicillin, coliform bacilli were found for the first time on six occasions; *Bacillus proteus* was found on five occasions, and diphtheroids were found three times. The authors suggest that in the chronically inflamed ear there is a process of antibiosis, in which one or more species of organisms suppress others and become dominant. If the dominant species is suppressed or retarded by specific treatment, then it would appear that the other organisms, which are latent, may assume a dominant role. Nine patients of the series were treated with local application of penicillin, the calcium salt being used in a strength of 800 to 1,000 Oxford units per cubic centimetre. On the average treatment lasted ten to fourteen days. Four of the nine patients obtained a dry and sterile ear, and four others showed some clinical improvement. The authors express disappointment with the results obtained with penicillin, but remark that it is expecting too much to anticipate that locally applied penicillin will reach deeply seated infection or will succeed where cholesteatoma is present. In the remaining cases, no penicillin-sensitive organisms were found, and this group of patients was therefore treated with such medicaments as boric acid in spirit, boric iodine powder and sulphonamide powders. Sulphanilamide powder appeared to be effective against the coliform bacilli; but none of the sulphonamide preparations appeared to influence *Bacillus proteus* infections, either clinically or bacteriologically. In several instances sulphathiazole given by mouth appeared to be effective in stimulating the reparative process in cases in which the tissues were otherwise slow to respond to routine treatment with boric acid and spirit drops.

The Conservative Treatment of Chronic Otitis Media in Adults.

T. M. BANHAM (*The Journal of Laryngology and Otology*, April, 1944) writes that in the fighting services it has been found necessary and practicable to endeavour, by conservative methods, to bring under control a large number of cases of chronic otitis media. The author reports the results obtained in the treatment of 200 consecutive patients so affected in the Royal Air Force. An essentially dry routine is followed, but thorough cleanliness is stressed, and to this end suction may be employed. Polypi and granulations are removed with suitable forceps and the base is touched with trichloroacetic acid. A powder dressing is then blown into the middle ear and depth of the meatus. Treatment is repeated once a day, or once or twice a week as is found necessary. Three powders have been tried: boric acid with 1% iodine solution; boric acid and sulphapyridine powder in equal parts, together with 1% iodine solution; and a powder of equal parts of boric acid and sulphathiazole. The last is believed to be the most effective and the least irritating. Tabulated results show that dry ears were produced in over 90% of cases with central perforations, in 83% of cases with attic perforation, but in only 49% of those with marginal perforations. When granulations were present

the condition was a little more resistant than when they were not. When cholesteatoma was present and could not be entirely removed through the external meatus, treatment was a failure. One hundred and sixty-five dry ears were obtained out of the total two hundred cases. In a further seventeen the condition could be classified as quiescent, and in eighteen the condition was unchanged. While in many cases the condition was made to dry up after two to four weeks of treatment, in a few it cleared up after one week, and in others it responded only after two months. Beyond two months the chances become less, so it is concluded that in any case in which there is a central or a marginal perforation which has not responded to a rigorous conservative routine after two or three months, operation should be recommended. While all patients could not be followed up for very long periods, a sufficiently large number were seen over a period of six months and longer to show that lasting results are obtainable. Associated with colds, recurrence of discharge is often to be expected when a perforation remains. In these cases the condition was as a rule rapidly brought under control by a short further course of treatment.

Prevention of Traumatic Deafness.

W. H. WILSON (*Archives of Otolaryngology*, July, 1944) reports that from the personnel of a United States Army post 108 men were exposed, one ear at a time, to a fatiguing tone of 2,048 cycles, at 80 decibels' intensity for eight minutes. Complete audiograms were taken before and after exposure to the fatiguing tone. A deviation of less than 10 decibels in the two curves was regarded as within the range of experimental error. A rise in threshold of 10 decibels or more was classified as an indication of a loss of perceptive power. Of this series of 108 subjects, 30 were found to be subject to fatigue, and in 22 of these cases fatigue was shown at 4,096 cycles. Seventy-eight subjects were classified as not showing fatigue. The group of 30 were expected to show a definite loss after small arms fire on the range, and 25 of them did so. Of the 78 who did not show experimental fatigue, 14 had a rise in threshold after returning from the range, but 64 showed no change. A further experiment was made to determine the consistency of the finding of fatigue, especially at 4,096 cycles, in susceptible individuals. In 268 subjects the threshold was determined for each ear at 4,096 cycles. One ear at a time was exposed to a fatiguing tone of 2,048 cycles at 80 decibels' intensity for eight minutes. After two minutes the threshold at 4,096 cycles was again determined. Sixty-six of the 268 subjects showed fatigue, 23 in both ears. The ratio of persons prone to fatigue worked out at 1 to 4.1 and 1 to 4.9 respectively in the two series tested. Based upon the conclusion that a rise in threshold after fatigue generally reaches a maximum one octave above the fatiguing frequency, and that the most vulnerable spot in the cochlea is in the 4,096 cycle area, the suggestion is made that a simple test of personnel seeking employment in a noisy industry may be carried out by determination of the hearing threshold at 4,096 cycles before and after exposure to a fatiguing frequency of 2,048 cycles.

British Medical Association News.

ANNUAL MEETING.

The annual meeting of the New South Wales Branch of the British Medical Association was held at the Robert H. Todd Assembly Hall, British Medical Association House, 135, Macquarie Street, Sydney, on March 22, 1945, Dr. G. C. Willcocks, the President, in the chair.

ANNUAL REPORT OF THE COUNCIL.

On the motion of Dr. A. J. Collins, seconded by Dr. B. T. Edye, the annual report of the Council was received and adopted. The report is as follows.

The Council presents the following report on the work of the Branch for the year ended March 22, 1945.

Membership.

The membership of the Branch is now 2,286, as against 2,096 at the date of the last report. The additions have included 233 elections, reelections and resumptions, and 17 removals into the area of the Branch, while the losses have included 6 by resignation, 16 removals out of the area of the Branch, 10 by default in payment of subscription and 28 by death. The losses by death were as follows: Dr. N. D. Royle, Dr. G. H. S. Lightoller, Dr. H. H. Marshall, Dr. A. J. MacKenzie, Dr. C. Nigel Smith, Dr. F. C. Herlihy, Dr. F. S. Stuckey, Dr. W. A. Andrews, Dr. A. S. Coburn, M.C., Dr. P. C. H. Homer, Dr. J. I. Robertson, Dr. F. C. Robertson, Dr. R. H. Bridge, Dr. J. W. Wilkinson, Dr. R. Belli, Dr. A. W. Munro, Dr. T. W. G. H. Schenk, Dr. P. T. Thane, Dr. H. O. Lethbridge, M.B.E., Dr. R. P. W. Francis, Dr. W. J. Manery, Dr. H. E. Fox, Dr. L. Utz, Dr. L. W. Bond, D.S.O., Dr. C. V. Roper, Dr. R. A. Lovejoy, Colonel R. H. Russell, D.S.O., Dr. R. Power.

Meetings.

Nine ordinary meetings of the Branch (including the annual general meeting) and four extraordinary general meetings of the Branch and seven clinical meetings were held. The average attendance was 83. Seven of the ordinary meetings were held in conjunction with meetings of special groups, namely: April 27, with the Section of Medicine and the Section of Neurology, Psychiatry and Neurosurgery; July 27, with the Section of Medicine; August 31, with the Section of Sociological Medicine and the Section of Medicine; September 28, with the Section of Pediatrics and the Section of Pathology and Bacteriology; October 26, with the Section of Sociological Medicine; November 30, with the Section of Urology and the Section of Radiology; December 14, with the Section of Pediatrics and the Oto-Rhino-Laryngological Society of New South Wales. The clinical meetings were held at the Royal Alexandra Hospital for Children; Royal Prince Alfred Hospital; Royal North Shore Hospital; Royal Hospital for Women; Lewisham Hospital; Sydney Hospital; and Saint Vincent's Hospital. The business of the meetings included thirteen papers, four addresses, numerous reports of cases, exhibits and demonstrations and the showing of films. At the ordinary meeting on May 25, Dr. F. M. Burnet, Director, the Walter and Eliza Hall Institute of Research in Pathology and Medicine, gave an address on "Influenza". On July 20 an extraordinary meeting was held, when addresses on "Penicillin" were given by Major J. I. Loewenthal and Captain J. Perry, and a film was shown. An extraordinary meeting was held on September 7, when Sir Howard Florey, Professor of Pathology, University of Oxford, gave an address on "Penicillin", illustrated by films. By-Law 4 was amended at the extraordinary meeting held on September 28, providing for an increase in the rate of annual subscription. The extraordinary meeting on October 12 was held in conjunction with the Section of Obstetrics and Gynaecology, when the subject for discussion was "Sterility".

Representatives.

The Branch was represented as follows:

1. Council of the British Medical Association (1938-....): Professor R. J. A. Berry.
2. Federal Council of the British Medical Association in Australia: Dr. George Bell, O.B.E., Dr. W. F. Simmons, Dr. A. J. Collins, D.S.O., M.C., Dr. H. R. R. Grieve.
3. Contract Practice Subcommittee of the Federal Council: Dr. H. R. R. Grieve.

4. Australasian Medical Publishing Company, Limited: Dr. T. W. Lipscomb, Dr. F. P. Sandes, Dr. A. M. Davidson, O.B.E.
5. New South Wales Post-Graduate Committee in Medicine: Dr. E. M. Fisher, Dr. A. C. Thomas.
6. Ophthalmic Association Limited: Dr. Colin C. Ross.
7. The Flying Doctor Service of Australia: Representative, Dr. George Bell, O.B.E.; Deputy Representative, Dr. J. G. Hunter.
8. Council of the Bush Nursing Association: Dr. G. C. Willcocks, O.B.E., M.C.
9. Board of Control of the Campaign against Tuberculosis: Dr. A. S. Walker.
10. Metropolitan Hospitals Contribution Fund of New South Wales: Dr. P. L. Hipsley.
11. Saint John Ambulance Association: Dr. G. C. Willcocks, O.B.E., M.C.
12. Executive Committee of the Council for Mental Hygiene for New South Wales: Lieutenant-Colonel C. K. Parkinson.
13. Standards Association of Australia: (i) Institutional Supplies Committee, Dr. S. W. G. Ratcliff; (ii) Sectional Committee on Interior Illumination of Buildings, Dr. E. A. Brearley; (iii) Committee on Standards of Laboratory Glassware and Volumetric Glassware, Dr. F. S. Hansman; (iv) Committee on Protective Glass for Welding, Surgeon Commander J. A. F. Flynn; (v) Committee on Plaster of Paris for Orthopaedic Purposes, Dr. L. J. Woodland.
14. Medical Officers' Relief Fund (Federal): Local Committee of Management for New South Wales, Dr. E. H. M. Stephen, Dr. A. M. Davidson, O.B.E., Dr. A. J. Collins, D.S.O., M.C.
15. Police Boys' Club: Dr. G. C. Willcocks, O.B.E., M.C.
16. Medical Appointments Advisory Committee (Hospitals Commission of New South Wales): Dr. W. Vickers, D.S.O.
17. Australian League of Nations Union—Refugee Emergency Council: Dr. E. P. Blashki.
18. Special Departmental Committee for the Investigation of Maternal Deaths: Dr. A. M. Davidson, O.B.E.
19. Recreation and Leadership Movement: Professor Harvey Sutton, Dr. W. C. McClelland.
20. Council of the Royal Society for the Welfare of Mothers and Babies: Sir Robert Wade, Dr. E. H. M. Stephen.
21. New South Wales State Medical Coordination Committee: Dr. A. J. Collins, D.S.O., M.C.
22. New South Wales Medical Board: Dr. J. R. Ryan.
23. The Free Library Movement: Dr. E. H. M. Stephen.
24. Workers' Educational Association: Dr. R. A. M. Allen, M.C.
25. New South Wales Institute of Hospital Almoners: Dr. W. Vickers, D.S.O.
26. Council of Education: Dr. A. J. Collins, D.S.O., M.C.
27. New South Wales War Loans and War Savings Certificates Committee: Dr. A. J. Collins, D.S.O., M.C.
28. Overseas Children Citizens' Committee: Dr. J. G. Hunter.
29. New South Wales Public School Teachers' Federation: Dr. D. G. R. Vickery.
30. Society of Laboratory Technicians of Australasia: Dr. Jean Armytage.
31. Status and Conditions of Nursing Profession: Dr. H. R. R. Grieve.
32. New South Wales Society for Crippled Children: Dr. E. H. M. Stephen.
33. Medical Finance Limited, Board of Directors: Dr. F. Brown Craig, Dr. A. M. Davidson, O.B.E., Dr. A. C. Thomas, Dr. George Bell, O.B.E.
34. Technical Bodies Advisory Committee on Housing Standards: Professor Harvey Sutton.
35. Housing Problem Committee, Institute of Engineers: Professor Harvey Sutton, Dr. Mary Puckey.
36. New South Wales Institute of Dietitians: Dr. E. W. Fairfax.
37. Coordinating Council for the Physically Handicapped: Delegates, Sir Robert Wade, Mr. K. F. Coles; Deputies, Dr. W. Vickers, D.S.O., Dr. G. M. Barron, O.B.E.

Council.

(a) The attendance of members of the Council and of the standing committees was as set out in the accompanying table.

ATTENDANCE AT COUNCIL AND STANDING COMMITTEE MEETINGS.

	Council.	Committees.					
		Executive and Finance.	Organization and Science.	Medical Politics.	Hospitals.	Ethics.	Medical Sociology and Research.
BARRON, G. M.	9	—	—	—	—	4	2
BELL, GEORGE	10	12	0	10	1	1	0
BLACKBURN, SIR CHARLES	10	—	—	—	—	4	—
BROWN, K. S. M.	11	11	—	—	—	—	—
COLLINS, A. J.	11	7	0	9	1	1	0
DAVIDSON, A. M.	11	6	—	—	—	—	1
DEY, L. A.	9	—	—	11	—	—	—
EDYE, B. T.	10	—	—	—	—	3	—
GRIEVE, H. R. R.	11	—	—	5	—	—	2
HAMILTON, MARIE	10	—	—	9	1	—	—
HIPSLEY, P. L.	9	—	—	—	1	4	—
JEREMY, R.	10	—	0	5	—	—	—
MCINTOSH, A. M. ¹	7	5	—	—	—	—	—
MADDOX, J. K. ¹	10	10	1	—	—	—	1
PARKER, K. S.	11	—	—	11	1	—	—
SIMMONS, W. F.	10	11	—	10	—	—	—
THOMAS, A. C.	10	—	—	9	1	3	—
TIVET, E. A.	11	10	2	11	0	3	0
WARD, H. K.	10	—	2	—	—	—	—
WILCOCKS, G. C.	11	12	—	11	1	3	2
Meetings held	11	12	2	11	1	4	2

¹ Full-time active service.

(b) The representatives of the Local Associations of Members, appointed on the invitation of the Council to attend the regular quarterly meetings of the Council, were as follows: Dr. E. P. Dark (Blue Mountains), Dr. H. A. McCredie (Canterbury-Bankstown), Dr. J. H. Coles (Central Southern), Dr. S. J. Woolnough (Central Western), Dr. H. A. Ryan (Eastern Suburbs), Dr. G. F. Elliott (Illawarra Suburbs), Dr. G. L. Howe (Kuring-gai District), Dr. G. C. Halliday (Northern District), Dr. J. R. Ryan (North Eastern), Dr. A. L. Caselberg (South Eastern), Dr. C. H. Jaede (South Sydney), Dr. A. A. Lang (Warringah District), Dr. R. D. Mulvey (Western), Dr. R. J. Waddington (Western Suburbs).

Library.

Dr. J. K. Maddox was appointed to the position of Honorary Librarian.

The following are the figures for the year:

Visitors to the library	3,712
Books lent to members	685
Journals lent to members	2,538
Books added to the library	102
Journals added to the library	13

Over the past few years there has been an appreciable increase in the figures, and the number of visitors to the library for the past twelve months has exceeded last year's figure by 824.

The number of journals now received currently in the library is 147.

Owing to the increased work in the library, it was decided to appoint a junior assistant to the librarian.

The Association has been pleased to offer a warm welcome to members of the medical personnel of the Royal Navy and to make available to them the full facilities of the library during the term of their visit to this State.

Donations of books and periodicals were received from the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, the Library of the Surgeon-General's Office, U.S.A., the Mayo Clinic Foundation, the British Empire Cancer Campaign, Free French Movement in Australia, the Department of Labour and National Service, Allied Geographical Section (South-west Pacific Area), Royal Australasian College of Surgeons, Royal Australasian College of Physicians, American Legation (Sydney), Dr. F. M. Blackwood, Dr. J. E. V. Barling, Dr. G. P. Matthews, Dr. J. K. Maddox, Dr. M. F. Deck, Dr. E. H. Molesworth, Dr. E. S. Stuckey, Dr. H. B. Bradley, Dr. D. G. Carruthers, Dr. T. M. Furber, Dr. A. J. Traill, Dr. J. O'Brien, Dr. A. S. Boyd, the Section of Radiology, the Section of Obstetrics and Gynaecology, the Section of Medicine, the Section of Pathology and Bacteriology, and the Ophthalmological Society of Australia (British Medical Association).

Affiliated Local Associations of Members.

Blue Mountains (affiliated 1944): *Chairman*, Dr. A. Allen; *Honorary Secretary*, Dr. E. P. Dark. Membership, 14. Four meetings were held.

Border (affiliated 1908): *Chairman*, Dr. C. M. MacKnight; *Honorary Secretary*, Dr. L. S. Woods. Membership, 12. One meeting was held.

Broken Hill (affiliated 1942): *Chairman*, Dr. A. E. Panting; *Honorary Secretary*, Dr. B. P. Funder. Membership, 13. Ten meetings were held.

Canterbury-Bankstown (affiliated 1930): *Chairman*, Dr. G. H. Pfeiffer; *Honorary Secretary*, Dr. G. Russell. Membership, 32. Two meetings were held.

Central Northern (affiliated 1910): *Chairman*, Dr. A. C. Clark; *Honorary Secretary*, Dr. O. J. Ellis. Membership, 57. Four meetings were held.

Central Southern (affiliated 1909): *Chairman*, Dr. H. R. Cope; *Honorary Secretary*, Dr. R. G. Woods. Membership, 25. One meeting was held.

Central Western (affiliated 1910): *Chairman*, Dr. M. O'Reilly; *Honorary Secretary*, Dr. K. S. M. Brown. Membership, 46. Two meetings were held.

Eastern District (affiliated 1913): *Chairman*, Dr. R. A. Rankine; *Honorary Secretary*, Dr. N. E. McLaren. Membership, 16. Two meetings were held.

Eastern Suburbs (affiliated 1911): *Chairman*, Dr. C. E. North; *Honorary Secretary*, Dr. B. W. Stevenson. Membership, 99. Two meetings were held.

Far South Coast and Tablelands (affiliated 1935): *Chairman*, Dr. G. A. Marshman; *Honorary Secretary*, Dr. L. W. Wing. Membership, 12. One meeting was held.

Illawarra Suburbs (affiliated 1913): *Chairman*, Dr. E. H. Miles; *Honorary Secretary*, Dr. G. W. Ashby. Membership, 50.

Kuring-gai District (affiliated 1929): *Chairman*, Dr. T. E. Y. Holcombe; *Honorary Secretary*, Dr. E. A. Cook.

North Eastern (affiliated 1913): *Chairman*, Dr. B. C. Terrey; *Honorary Secretary*, Dr. G. J. Rawle. Membership, 37. Five meetings were held.

Northern District (affiliated 1911): *Chairman*, Dr. R. G. Banks-Smith; *Honorary Secretary*, Dr. R. J. Jackson. Membership, 66.

South Eastern (affiliated 1914): *Chairman*, Dr. A. L. Caselberg; *Honorary Secretary*, Dr. D. A. Britten. Membership, 19.

Southern District (affiliated 1909): *Chairman*, Dr. N. F. Benjamin; *Honorary Secretary*, Dr. R. M. G. Holmes. Membership, 65. Two meetings were held.

South Sydney (affiliated 1909): *Chairman*, Dr. R. S. Scott; *Honorary Secretary*, Dr. C. H. Jaede. Membership, 28. Three meetings were held.

Warringah District (affiliated 1929): *Chairman*, Dr. J. S. F. Elphinstone; *Honorary Secretary*, Dr. E. L. Newman. Membership, 74. Three meetings were held.

Western (affiliated 1908): *Chairman*, Dr. S. L. Cameron; *Honorary Secretary*, Dr. S. R. Dawes. Membership, 48.

Western Suburbs (affiliated 1908): *Honorary Secretary*, Dr. R. J. J. Speight.

Annual Meeting of Delegates.

The thirty-first annual meeting of delegates of the affiliated local associations of members with the Council was held on Friday, September 8, 1944.

The delegates present at the meeting were as follows: Blue Mountains, Dr. E. P. Dark; Border, Dr. R. A. Robertson; Central Southern, Dr. R. G. Woods; Central Northern, Dr. O. J. Ellis; Eastern Suburbs, Dr. S. G. Nelson; Eastern District, Dr. N. E. McLaren; Illawarra Suburbs, Dr. G. F. Elliott; Kuring-gai District, Dr. J. P. C. Madden; Northern District, Dr. A. G. Brydon; North Eastern, Dr. J. R. Ryan; Southern District, Dr. N. J. Benjamin; South Eastern, Dr. A. L. Caselberg; Warringah District, Dr. J. V. Mutton; Western, Dr. R. D. Mulvey; Western Suburbs, Dr. R. J. Waddington.

Special Group.

A Resident Medical Officers' Special Group was constituted by the Council. The object of the special group is the collection, propagation and dissemination by and amongst members of the group of scientific knowledge, information and data, and the promotion of general and social interests of resident medical officers in conformity with the constitution of the Association. Any resident medical officer of a public hospital who is a member of the Association is eligible for membership.

The Honorary Secretary is Dr. J. W. Hornbrook, Royal Prince Alfred Hospital, Camperdown.

Special Groups for the Study of Special Branches of Medical Knowledge.

Anæsthesia (inaugurated 1934): *Chairman*, Dr. C. N. Paton; *Honorary Secretary*, Dr. A. Distin Morgan. Membership, 8. One meeting was held.

Genito-Urinary and Venereal Diseases (inaugurated 1928). Medical Literature and History (inaugurated 1925).

Medicine (inaugurated 1924): *Chairman*, Dr. E. H. Stokes; *Honorary Secretary*, Dr. W. L. Calov. Membership, 24. Seven meetings were held, three in conjunction with meetings of the Branch.

Neurology, Psychiatry and Neurosurgery (inaugurated 1924): *Chairman*, Dr. E. T. Hillard; *Honorary Secretary*, Dr. C. Henry. Membership, 39. Six meetings were held, one in conjunction with a meeting of the Branch.

Obstetrics and Gynecology (inaugurated 1925): *Chairman*, Dr. T. Dixon Hughes; *Honorary Secretary*, Dr. M. Britnell Fraser. Membership, 62. Five meetings were held, one in conjunction with a meeting of the Branch.

Orthopaedic Group (inaugurated 1923): *Chairman*, Dr. S. H. Scougall; *Honorary Secretary*, Dr. C. C. McKellar. Membership, 16. Five meetings were held.

Oto-Rhino-Laryngological Society (inaugurated 1924): *Chairman*, Dr. D. G. Carruthers; *Honorary Secretary*, Dr. G. C. Halliday. Six meetings were held, one in conjunction with a meeting of the Branch.

Pediatrics (inaugurated 1921): *Chairman*, Dr. L. G. Tait; *Honorary Secretary*, Dr. Kathleen Winning. Membership, 17. Three meetings were held, two in conjunction with meetings of the Branch.

Pathology and Bacteriology (inaugurated 1924): *Honorary Secretary*, Dr. F. S. Hansman. One meeting in conjunction with a meeting of the Branch was held.

Preventive Medicine (inaugurated 1922): *Chairman*, Dr. E. S. Morris; *Honorary Secretary*, Dr. E. S. A. Meyers.

Radiology (inaugurated 1926): *Chairman*, Dr. A. T. Nisbet; *Honorary Secretary*, Dr. D. G. Maitland. One meeting in conjunction with a meeting of the Branch was held.

Sociological Medicine (inaugurated 1944): *Honorary Secretary*, Dr. L. E. Hewitt. Membership, 23. Five meetings were held, two in conjunction with meetings of the Branch.

Surgery (inaugurated 1925).

Urology (inaugurated 1940): *Chairman*, Dr. J. W. S. Laidley; *Honorary Secretary*, Dr. K. L. H. Kirkland. Membership, 9. Four meetings were held, one in conjunction with a meeting of the Branch.

The Federal Council of the British Medical Association in Australia.

The Federal Council of the British Medical Association in Australia met in Melbourne on January 31, February 1 and 2, 1944, September 25, 26, 27 and 28, 1944, and March 12, 13 and 14, 1945; in Sydney on May 30 and 31 and June 1, 1944; and in Canberra on June 28, 29, and 30, 1944.

At these meetings the Branch was represented as follows: by Dr. George Bell and Dr. W. F. Simmons at the meetings in Melbourne and Sydney during 1944, by Dr. H. R. R. Grieve and Dr. W. F. Simmons at the meeting at Canberra, and by Dr. A. J. Collins and Dr. W. F. Simmons at the meeting in Melbourne, 1945.

Department of Medical Sociology and Research.

The department's work was continued as in the previous year, with broadcasts on medical subjects and on nutrition, and two new features were introduced.

In the "Highways to Health" series, nine talks were given by the Spokesman of the Association, and the last of these, "When Vaccines are Protective", brings this series to one hundred. At the request of the Australian Broadcasting Commission, the "Kitchen Front" daily talks on nutrition and food economy were continued, and to date 944 of these talks have been given by the Spokesman. Six articles were prepared for the "Health Week" booklet.

One new feature of the work was the preparation of a series of four lectures, at the request of the Director of University Tutorial Classes, for use by the "discussion groups" organized by the University Tutorial Class Department. The subjects were: "Patient and Doctor: The Story of a Relationship", "Vitamin Facts and Fiction", "X Rays and Radium", and "The Age Shift and Our Social Policy".

The second new feature was the introduction, in June last, by the Australian Broadcasting Commission of radio talks on the care and guidance of children. Two of these talks, which are edited by the department, are given by the Spokesman of the Association each Friday morning, over the national broadcasting network, being included in the half-hour of the "Women's Session". To date 72 have been given, on a wide range of subjects covering the physical, psychological and recreational needs of children, from infancy to adolescence. The Australian Broadcasting Commission considers that this feature is very popular, and it wishes to continue the series indefinitely, as with the "Kitchen Front".

Assistance was given to the Press on many occasions in checking articles on medical subjects before publication and in providing explanatory comments on items of medical news.

Rehabilitation of Medical Officers of the Armed Services.

With a view to assisting in the rehabilitation of medical officers of the armed services, each local association has been requested to make a survey of its area for the purpose of ascertaining how many medical officers can be absorbed either as *locum tenentes*, as assistants, as partners or as principals.

A questionnaire has been sent to all practitioners who enlisted in New South Wales, whether members of the Association or not, seeking their wishes in regard to post-graduate education and professional work on demobilization.

Medical Planning.

On September 8, 1944, a convention was held to discuss the Federal Government's policy for the provision of medical and hospital services to the community. Forty-three organizations accepted the invitation of the Council to send a representative to the convention. Dr. D. Roseby, President, and Dr. C. H. Dickson, Medical Secretary, Victorian Branch, also accepted the invitation of the Council.

The following resolutions were adopted by the convention:

1. "This convention reaffirms the constructive health policy of the Federal Council as meeting the public need, and emphasizes that preventive measures should receive the early attention that their importance warrants."
2. "The Government policy having been stated to be a free medical service to all, with control by Government department and a contract for service between the Government and the doctor, this convention is agreed that such a policy is not in the public interest and is not acceptable to the members of this Association. The main basis of the objection is that the regimentation both of patients and practitioners, inseparable from and essential to any Government scheme of

free curative medical and hospital service departmentally controlled, is inimical to maximum efficiency and public confidence."

3. "That no general medical service scheme is acceptable to the members of this Association which does not maintain the existing doctor-patient relationship."
4. "This convention considers that the medical profession should not render honorary service to patients in public wards and out-patients' departments who can afford to pay for intermediate or private treatment, except in cases of emergency."
5. "That the notice of the Government should be again drawn to the fact that there is a dangerous deficiency in all classes of hospital accommodation and that no scheme to improve the health of the community can succeed unless adequate hospital services be provided."

Pharmaceutical Benefits Act.

In a newsletter dated November 20, 1944, members were advised of the discussions which had taken place between the Federal Government and the Federal Council in regard to the *Pharmaceutical Benefits Act*, and of the decisions of the Federal Council and the Branch Council in regard thereto.

Contract Medical Practice.

At the request of the Friendly Societies Association a conference was held to consider a suggestion by it for the provision of medical services to persons within the income range of seven pounds to twelve pounds per week.

The representatives of the Friendly Societies Association were informed that for this group of persons the profession would be unwilling to provide a medical service, payment for which would be on a capitation basis as in lodge practice, and they were asked to give consideration to a service, payment for which would be on a fee for service basis.

Public Service Medical Officers.

The Public Service Board of New South Wales was informed that the salaries paid to medical officers employed in the various departments of the New South Wales Government are inadequate and not commensurate with the duties and responsibilities of these officers, and was requested to give consideration to a general increase in salaries of twenty per centum.

Resident Medical Officers: Conditions of Service.

Following representations by the Council, the boards of the Royal Prince Alfred Hospital, Sydney Hospital, Prince Henry Hospital, Royal North Shore Hospital and Royal Alexandra Hospital for Children have submitted a joint application to the Industrial Commission for permission to vary the rates of payment made to members of the resident medical staffs. A separate application to the Industrial Commission for the same purpose has been made by Newcastle Hospital.

Parliamentary Standing Committee on Broadcasting.

At the invitation of the Parliamentary Standing Committee on Broadcasting, evidence was given by a representative of the Association, Dr. H. R. R. Grieve, on the matter of broadcast talks on venereal diseases and sex relationships.

In a statement submitted, the opinion was expressed that the subject of venereal diseases was a suitable one for broadcast talks, but that the subject of sex relationships was not.

Private Hospitals.

In view of representations which have been made regarding the inadequate standards of operating theatres in some private hospitals, a report was drawn up by the Council setting out certain standards which should prevail.

A copy of the report was forwarded to the Director-General of Health.

Amendment of By-Law.

At an extraordinary meeting held on September 28, 1944, By-Law 6 was amended by the deletion of the words "Six pounds six shillings" wherever occurring and the substitution in lieu thereof the words "Seven pounds seven shillings".

British Medical Agency of New South Wales, Limited.

The annual general meeting of the members of the British Medical Agency of New South Wales, Limited, was held on October 3, 1944.

The chairman, Dr. A. M. Davidson, in presenting the report on the operations of the company for the year ended June 30, 1944, pointed out that the position of the company showed improvement in comparison with the previous year. The profit shown for the year was higher than for the previous year and such result was encouraging for the future. Restrictions imposed through manpower, however, were still affecting transfers of practices, supplying *locum tenentes et cetera*.

The outlook for the coming year appeared satisfactory, and it was expected that the results of 1944 would be maintained or improved.

Medical Finance, Limited.

The annual general meeting of the members of Medical Finance, Limited, was held on October 3, 1944.

The chairman of directors, Dr. A. M. Davidson, said he was pleased to present the balance sheet covering the seventh year of business, ending June 30, 1944, as it showed a profit on the year's operation.

A few small loans had been made during the year, and the repayments of existing loans were such that they did not affect the continued decline in the outstanding balances.

The general position of the company was very sound, but at the present time business was restricted by wartime conditions. When the war was over, however, the facilities of the company would, in all probability, be in great demand.

Premises Revenue Account.

The premises revenue account discloses a net surplus of £1,613, as against a net surplus of £702 for the year ended December 31, 1943, thus showing an increase of £911 in the net surplus revenue earned. This increase is accounted for by a net increase in income of £1,253 and a net increase in expenditure of £347, as set out in detail on the accompanying comparative statement.

A comparison of the annual percentages of expenditure to rent revenue from the time of opening the building in 1930 up to December 31, 1944, is as follows:

	Percentage of Expenses to Revenue.		Percentage of Result to Revenue.
1 year to December 31, 1930 ..	119.4%	Deficiency	19.4%
1 year to December 31, 1931 ..	114.8%	Deficiency	14.8%
1 year to December 31, 1932 ..	109.8%	Deficiency	9.8%
1 year to December 31, 1933 ..	97.9%	Surplus	2.1%
1 year to December 31, 1934 ..	77.7%	Surplus	22.3%
1 year to December 31, 1935 (including depreciation) ..	102.1%	Deficiency	2.1%
1 year to December 31, 1936 (including depreciation) ..	89.0%	Surplus	11.0%
1 year to December 31, 1937 (including depreciation) ..	82.7%	Surplus	17.3%
1 year to December 31, 1938 (including depreciation) ..	78.6%	Surplus	21.4%
1 year to December 31, 1939 (including depreciation and provision for doubtful debts) ..	80.6%	Surplus	19.4%
1 year to December 31, 1940 (including depreciation and provision for taxation) ..	81.9%	Surplus	18.1%
1 year to December 31, 1941 (including depreciation and provision for taxation) ..	89.5%	Surplus	10.5%
1 year to December 31, 1942 (including depreciation and provision for taxation) ..	95.1%	Surplus	4.9%
1 year to December 31, 1943 (including depreciation and provision for taxation) ..	95.6%	Surplus	4.4%
1 year to December 31, 1944 (including depreciation and provision for taxation) ..	90.8%	Surplus	9.2%

The percentages of rent revenue, expenses and depreciation and the percentage of net surplus for the year to the capital value of the land and building (British Medical Association House) as shown by the books at December 31, 1944, namely £158,448 11s. 3d., with the previous year's percentages in parentheses, are as follows:

	£	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.
To Salaries	3,186	10	11				By Subscriptions Received—						
" Rent—Offices <i>et cetera</i>	1,000	0	0				1944	10,295	18	6			
" Printing and Stationery	265	3	5				1943	163	16	0			
" Stamps and Telegrams	308	15	2				Previous Years	119	14	0			
" Telephones	162	17	1								10,579	8	6
" Code Address	2	4	6				Less Proportion due to—						
" Typewriter Repairs	7	10	0				British Medical Association ..	2,747	3	2			
" Travelling Expenses	16	10	0				THE MEDICAL JOURNAL OF						
" Insurance	7	16	1				AUSTRALIA	1,853	7	6			
" Exchange and Bank Charges	9	3	10								4,600	10	8
" Refreshments—Meetings	4	12	6								5,978	17	10
" Newspapers	5	12	10				" Interest	185	6	4			
" Sundry Petty Expenses	39	17	3				" Rent—Assembly Hall	82	14	6			
" Gratuity	15	0	0				" University Tutorial Classes ..	20	0	0			
" Tea Money	4	0	0				" Broadcasting Fees	293	9	6			
" Federal Council	1,333	3	0				" Donations	1	11	6			
" Legal Expenses	3	3	0				" Sales—Lodge Common Form of						
" Pay-Roll Tax	67	6	0				Agreement <i>et cetera</i>	2	12	6			
				6,625	4	8					585	14	4
" Depreciation of—							" Net Deficit for year ended						
Library	151	3	1				December 31, 1944, transferred						
Office Furniture and Equipment ..	60	0	3				from Accumulated Funds						
				211	3	4	Account						
											271	15	10
				£6,836	8	0					£6,836	8	0

House), plant, office furniture and equipment and the library.

A sum of £200 has been provided out of the current year's revenue to create a reserve for painting the exterior of the building. This amount for the time being is used in the business of the Association.

Dr. George Bell moved that the balance sheet, the statement of receipts and expenditure and the premises account be received. The motion was seconded by Dr. A. C. Thomas. Dr. Thomas also seconded the motion that the statements be adopted. Both the motions were carried.

ELECTION OF OFFICE-BEARERS.

Dr. G. C. Willcocks announced that the following had been elected members of the Council for the ensuing year: Dr. G. M. Barron, Dr. George Bell, Sir Charles Blackburn, Dr. A. J. Collins, Dr. A. M. Davidson, Dr. L. A. Dey, Dr. B. T. Edye, Dr. H. R. R. Grieve, Dr. G. C. Halliday, Dr. P. L. Hipsley, Dr. H. Hunter Jamieson, Surgeon Commander J. K. Maddox, Colonel A. M. McIntosh, Dr. K. S. Parker, Dr. W. F. Simmons, Dr. A. C. Thomas, Dr. E. A. Tivey, Professor H. K. Ward.

Messrs. F. W. Duesbury and Company were appointed auditors for the coming year.

INCOMING PRESIDENT'S ADDRESS.

Dr. E. A. Tivey delivered his address (see page 449). At the conclusion of the address Dr. K. S. Parker moved a vote of thanks to Dr. Tivey for his address. Surgeon Commander J. K. Maddox seconded the vote of thanks which was carried by acclamation.

INDUCTION OF PRESIDENT.

Dr. G. C. Willcocks inducted the President for the year 1945-1946 (Dr. E. A. Tivey). Dr. Tivey thanked the members for his election.

Medical Societies.

THE MEDICAL DEFENCE SOCIETY OF QUEENSLAND.

THE annual meeting of the Medical Defence Society of Queensland was held at British Medical Association House, Wickham Terrace, Brisbane, on February 16, 1945, Dr. ALEX MARKS, the President, in the chair.

Minutes.

The minutes of the previous annual meeting were read and confirmed.

Annual Report and Balance Sheet.

The annual report and balance sheet were presented and adopted on the motion of the President, seconded by Dr. H. W. Horn. The report is as follows.

The Council has pleasure in presenting the annual report of the Medical Defence Society of Queensland for the year ending December 31, 1944.

Membership.

The total membership of the society is 441 as against 423. Our gains were: new members 39, members reinstated 6. The losses were: deceased 9, left the State 6, owing subscription for 1944, 3.

Obituary.

It is with deep regret that we record the deaths of the following members: Dr. J. Lockhart Gibson, one of the earliest members, and Dr. Kenneth Wilson, who was a member of the Council for a number of years, Dr. Anton Brelml, Dr. H. J. Birchley, Dr. T. P. Connolly, Dr. E. W. F. Dolman, Dr. E. Bruce Smith, Dr. C. E. Wassell, Dr. C. J. Weedon.

Office-Bearers and Councillors for 1944.

The following were reelected: *President*, Dr. Alex H. Marks; *Vice-President*, Dr. S. F. McDonald; *Honorary Secretary*, Dr. Neville G. Sutton; *Honorary Treasurer*, Dr. L. P. Winterbotham; *Councillors*, Dr. A. G. Anderson, Dr. Gavin H. Cameron, Dr. G. P. Dixon, Dr. E. R. Row, Dr. John Hardie, Dr. Kenneth Wilson, Dr. R. A. G. Malcolm. The retiring members were Dr. G. P. Dixon, Dr. Gavin Cameron and Dr. R. A. G. Malcolm, who were reelected.

Medico-Legal.

Re X-Ray Films.—Advice was requested regarding a demand made by a patient for X-ray plates to be handed over to him, and the action of the doctor was endorsed in stating that he would forward them to another doctor, and pointing out that they are not for the patient's possession, but are for the purpose of consultation with a view to arriving at a satisfactory diagnosis and guide for treatment.

Re Venereal Disease Case.—A member inquired if he can legally be asked to disclose information concerning a patient suffering from venereal disease. Legal advice was obtained which was to the effect that the doctor cannot be required legally to disclose information as to a patient suffering from venereal disease which is secret by an act of Parliament.

Re Action against a Member.—This matter has been negotiated by the society's solicitors and a settlement was arranged.

A threatened case of action for alleged negligence was referred to the society's solicitors, who are taking the matter up with the authority concerned.

Re Indemnity Insurance.—Negotiations with the London and Counties Medical Protection Society are now complete, and 169 members have taken advantage of the voluntary security provided.

Finance.

It will be noted from the balance sheet that the total assets of the society are £6,989, of which £6,563 18s. is invested in Commonwealth loan. The net surplus for the year amounted to £419 7s. 11d., and the total expenditure was £50 16s. 3d.

Election of Councillors.

Dr. E. R. Row, Dr. John Hardie and Dr. G. W. Macartney, being the only nominees, were declared elected councillors for 1945.

Election of Auditors.

Messrs. R. G. Groom and Company, Chartered Accountants (Aust.) were reelected auditors on the motion of Dr. L. P. Winterbotham, seconded by Dr. John Hardie.

Honorary Secretary.

Dr. Neville Sutton applied for leave of absence from his duties as honorary secretary for a period of five months from December, 1944, to April, 1945. Leave was granted.

Australian Medical Board Proceedings.

NEW SOUTH WALES.

THE undermentioned additional qualifications have been registered, pursuant to the provisions of the *Medical Practitioners Act, 1938-1939*, of New South Wales:

Small, Ronald Herbert (M.B., B.S., 1923, Univ. Melbourne), Dip.Rad., 1936 (Univ. Melbourne), 32, Carlotta Avenue, Gordon.

Murphy, James Arthur Remilton (M.B., 1914, Ch.M., 1919, Univ. Sydney), F.R.A.C.S., 1929, D.P.H. (London), 1936, Waterfall Sanatorium.

QUEENSLAND.

THE undermentioned has been registered, pursuant to the provisions of *The Medical Acts, 1939 to 1940*, of Queensland, as a duly qualified medical practitioner:

Cleghorn, Margaret Linnell, M.B., B.S., 1939 (Univ. Sydney), 159, Kent Road, Woolloowin.

Obituary.

EUSTACE TOWNLEY PINHEY.

WE regret to announce the death of Dr. Eustace Townley Pinhey, which occurred on April 24, 1945, at London.

ROBERT ALEXANDER McWILLIAM ROBINSON.

We regret to announce the death of Dr. Robert Alexander McWilliam Robinson, which occurred at Brisbane on April 8, 1945.

WILLIAM ANGUS FRASER.

We regret to announce the death of Dr. William Angus Fraser, which occurred at Boonah, Queensland, on April 25, 1945.

WILLOUGHBY FLOWER.

We regret to announce the death of Dr. Willoughby Flower, which occurred on April 28, 1945, at Dubbo, New South Wales.

Naval, Military and Air Force.

CASUALTIES.

ACCORDING to the casualty list received on April 10, 1945, Major J. F. N. Thomas, A.A.M.C., Hazelbrook, New South Wales, has been placed on and removed from the "seriously ill" list.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

- Ellas, Leaton, M.B., 1938 (Univ. Sydney), Base Hospital, Wagga Wagga.
 Hemphill, Betty Laun (registered as Degotardi), M.B., B.S., 1941 (Univ. Sydney), 38, Elizabeth Street, Mayfield.
 Hercus, Victor Mackay, M.B., B.S., 1942 (Univ. Sydney), Surgeon Lieutenant V. M. Hercus, 82, St. George's Crescent, Drummoyne.

The undermentioned has applied for election as a member of the Western Australian Branch of the British Medical Association:

- Ryan, Margaret, M.B., B.S., 1938 (Univ. Melbourne), 336, Oxford Street, Leederville.

Medical Appointments.

Dr. Herman Frederick Kuhlmann has been appointed Acting Medical Officer of Health, during the absence of Dr. Robert M. W. Webster on military service, of the Ross Municipality, Hobart, Tasmania.

Dr. Egon Suerth has been appointed Medical Officer of Health of the Beaconsfield Municipality, Hobart, Tasmania.

Dr. Philip Nolan has been appointed Acting Medical Officer of Health of the Green Ponds Municipality, Hobart, Tasmania.

Books Received.

"The 1944 Year Book of Urology", by Oswald S. Lowesley, M.D., F.A.C.S.; 1944. Chicago: The Year Book Publishers Incorporated. 7" x 4½", pp. 416, with 94 illustrations. Price: \$3.00, post paid; Australian price: 23s. 6d.

"The 1944 Year Book of Industrial and Orthopedic Surgery", edited by Charles F. Painter, M.D.; 1944. Chicago: The Year Book Publishers. 7" x 4½", pp. 432, with many illustrations. Price: \$3.00. Australian price: 23s. 6d.

"A New Era", The Philadelphia Conference and the Future of the I.L.O.; 1944. Montreal: International Labour Office. 9" x 6½", pp. 154. Price: 4s.

"The Mode of Action of Sulfonamides", by Richard J. Henry, M.D.; 1944. Philadelphia: Josiah Macy, Junior, Foundation. 9" x 6", pp. 288.

Diary for the Month.

- MAY 8.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
 MAY 8.—Tasmanian Branch, B.M.A.: Ordinary Meeting.
 MAY 11.—Queensland Branch, B.M.A.: Council Meeting.
 MAY 14.—Victorian Branch, B.M.A.: Hospital Subcommittee.
 MAY 14.—Victorian Branch, B.M.A.: Finance, House and Library Subcommittee.
 MAY 15.—Victorian Branch, B.M.A.: Organization Subcommittee.
 MAY 15.—New South Wales Branch, B.M.A.: Medical Politics Committee.
 MAY 16.—Western Australian Branch, B.M.A.: General Meeting.
 MAY 17.—Victorian Branch, B.M.A.: Executive Meeting.
 MAY 17.—South Australian Branch, B.M.A.: Council Meeting.
 MAY 22.—New South Wales Branch, B.M.A.: Ethics Committee.
 MAY 23.—Victorian Branch, B.M.A.: Council Meeting.
 MAY 24.—New South Wales Branch, B.M.A.: Clinical Meeting.
 MAY 25.—Queensland Branch, B.M.A.: Council Meeting.
 MAY 31.—New South Wales Branch, B.M.A.: Branch Meeting.
 MAY 31.—South Australian Branch, B.M.A.: Scientific Meeting.
 JUNE 1.—Queensland Branch, B.M.A.: Branch Meeting (Joseph Bancroft Memorial Lecture).
 JUNE 5.—New South Wales Branch, B.M.A.: Organization and Science Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmalm United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phoenix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All Public Health Department appointments.

Editorial Notices.

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